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ORGANIZATIONAL INNOVATION AND SOCIAL FACTORS IN FARM DIVERSIFICATION

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Beyond Beef and Barley: Organizational Innovation and Social Factors in Farm Diversification and Sustainability

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1.0 Introduction

This study employs several approaches to explore, analyze, and conceptualize the importance of social and organizational factors in agriculturally-based diversification. The first exercise is an effort to categorize key dimensions in the evolution of farming systems. The resulting schema, or typology, allows us to consider the major historical transitions that have occurred, and how the interplay of economic, agronomic, technological, and social factors gave rise to mixed farming, to specialized farming and, more recently, to the modern diversified, or multiple specialty farm. This analytical approach also allows us to more systematically assess the potential social and systemic implications of such changes.

The second approach is a statistical and graphical analysis using custom tabulations from the 1981, 1986, and 1991 Census of Agriculture. These custom data are used to examine trends in the bivariate relationships between key structural variables and the levels of enterprise diversification on Saskatchewan farms. In conjunction with this research we present an analysis of data pertaining to the mix of crops and livestock produced in the Province, 1911-1999 (an Entropy index).

The third research approach is a set of 25 case studies of agricultural diversification. These are based on interviews with managers of each enterprise. The cases are presented in tabular form under categories dealing with organizational and human factors in the history and development of the project. The concluding section of the report presents some observations extracted from the three-pronged research strategy, particularly with respect to the development of diversification projects, and diversification as rural development.

2. A Typology of Farming Systems

Diversified farms of the 1990s exhibited agronomic, economic, and social characteristics that distinguished them qualitatively from more traditional mixed farms common in many parts of Saskatchewan in the first half of the century. They were and are likewise distinct from the specialized farms which have predominated in the province since approximately 1950. For analytical purposes, we can distinguish between the "classical mixed farm" (CMF), which has largely disappeared, and the "modern specialized farm" (MSF), which remains very important but which is being replaced, in some instances, by the "modern diversified farm" (MDF) (Fig. 2-1 in Appendix).

In a proposed typology of farming systems (Table 2.1), we focus on contrasts between the CMF and the MDF as "ideal typical" systems of farming. As an analytical device, the use of "ideal types" focuses attention on key changes and their potential ramifications. This should not be mistaken for advocacy, nor for an assertion that actual farms conform fully to these descriptive archetypes. In Saskatchewan, as elsewhere, the farm sector is heterogeneous in terms of the structure and organization of farm enterprises. This reflects differential resource endowments, the financial and family situations of operators, and personal philosophies with respect to "farming styles" (van der Ploeg, 1993). Although it is a mistake to ignore this diversity, it is also useful to investigate the emergence of new dominant or modal forms and, at the same time. to investigate broad underlying developments that affect all kinds of farming.

Table 2.1 Comparison of Farming Systems in Saskatchewan

Farming System	Classical Mixed Farm (CMF)	Modern Specialized Farm (MSF)	Modern Diversified Farm (MDF)
Era	1880-1950	1950-1990	1990-
Enterprise Mix	Diversified Crop & Livestock Farm	Specialized Crop and/or Livestock Production	Multiple Specialties: May Include Specialty Crops & Exotic Livestock
Primary Design Criteria	Resource Driven: Full Use of Production Factors	Market Driven: Specialization & Expansion	Market Driven: Diversification & Expansion
Product & Process Specialization	Diversified & Integrated Products & Processes	Product & Process Specialization	Specialty Products, Processes & Markets
Flexibility	Flexible Allocation of Production Resources & Intermediate Products	Limited Flexibility due to Narrow Product Mix & Capital Constraints	Flexibility Constrained By Specialized Technology & Facilities
Technology	Low Input Low Tech	High Input High & Low Tech	High Input High Tech & More Tech

Table 2.1 Comparison of Farming Systems in Saskatchewan continued...

Farming System	**Classical Mixed Farm (CMF)**	**Modern Specialized Farm (MSF)**	**Modern Diversified Farm (MDF)**
Knowledge & Technology Control	Producer Designed Production Process	Reliance on Extension & Input Suppliers for Production Advice	Processors, Brokers, Business Groups provide Technical Support & Specialization. Increased Vertical Integration
Farm Size	Small	Medium to Large	Variable but Generally Larger
Tenure	Owned by Family	Cash Rent, Crop Share & Bank Mortgage	Cash Rent, Mortgage, Joint Ventures
Sources of Capital	Limited & Generated Through Family Network & Community Ties	Expanded Credit from Financial Agencies & Institutions	Expanded Capital: Project Specific Funding & Specialized Lenders
Markets	Allocation Among Self-Provisioning, Farm Use, Local Markets & General Commodity Markets	Regulated General Commodity Markets	Open Markets, Specialized Markets, Niche Markets. Vertical Integration

Table 2.1 Comparison of Farming Systems in Saskatchewan continued...

Farming System	**Classical Mixed Farm (CMF)**	**Modern Specialized Farm (MSF)**	**Modern Diversified Farm (MDF)**
Value	Value Added for Farm & Household Use & Local Markets	Value Generated by Increased Scale in Context of Declining Margins	Value may be Added by Specialized Processing, Manufacturing or Niche Marketing
Farm Household Organization	Large	Medium to Small	Small but Multi-Household Enterprise Now More Common
Social Economy	Family's Farm: Integration of Farm Household Members	Operator's Farm: Household Members as Paid or Unpaid Labor, or Absent	Partners' Farm: >1 Operator, Family as Paid Labor, or Absent
Networks & Community Dynamics	Community & General Farm Organizations	Commodity Groups & Specialized Community Groups	Specialty Product Associations, Business & Specialized Community Groups

Era and Enterprise Mix. The Classical Mixed Farm (CMF) was the numerically predominant form of farming from the beginning of European settlement in the 1880s, until approximately 1950. The typical CMF started fairly small (by today's standards) but expanded and became more specialized on its way to becoming a Modern Specialized Farm (MSF). Social, political, and economic developments—including wartime mobilization, investment, and postwar reconstruction—helped to spur the transition to a more capital intensive, specialized agriculture in Saskatchewan. Through the 1950s and 1960s, Saskatchewan farms shed their self-provisioning attributes and internally integrated processes.

At the beginning of the transition, specialized farms kept many of the subsidiary enterprises of the earlier days. By the 1950s, however, the modal form was an MSF with a narrow mix of products. Not coincidently, the MSF provided new markets for agribusiness as there was increased investment in technologies and, along with increased product specialization, increased *process* specialization (i.e. fewer steps in the production process were carried out on the particular farm, and more inputs and specialized services were purchased). In the late 1980s, problems associated with intense specialization encouraged farmers, communities, and governments to reemphasize diversification of farms and rural economies. One outcome was the Modern Diversified Farm (MDF). These exist in many sizes, but most are large operations.

The typical CMF was a diversified crop and livestock farm. Its MDF counterpart may or may not include livestock, and where animals are part of the farming system, generally only one type of livestock enterprise is present in large numbers. For some this is a herd or flock of traditional livestock such as beef cattle, hogs, dairy cattle, or broiler chickens. For others it is some species of exotic livestock (bison, emu, ostrich, fallow deer, elk, wild boar, fish, rabbits, etc.). Moving from the MSF to the MDF model typically has meant adding one or two more specialities to the specialized cropping mix. Because of this, the modern diversified farm (MDF) might also be very appropriately labelled a "*modern multiple specialty farm*" or a "*modern diversified specialty farm.*"

Primary Design Criteria. In terms of the fundamental principals guiding choices with respect to farming systems, the traditional mixed farming system could be characterized as resource-driven. Adoption of a generalist strategy (Levins, 1968, cited in Anosike and Coughenour, 1990) allowed the farm household to make full use of available labour and capital, as well as land resources which could be quite variable in terms of agronomic characteristics. The MDF tends to be, first and foremost, market-driven. While cropping systems and production strategies continue to reflect basic ecological conditions and resource endowments, these can be modified with investments in agrochemicals, specialized livestock facilities, irrigation, and other sophisticated technologies. Within limits, the crop mix and the production system are adjusted in response to external market signals.

Product and Process Specialization. The CMF was a relatively integrated operation. There were strong links among the various enterprises and the household in terms of inputs and outputs. By contrast, the MDF is specialized as to commodities but also with respect to intermediate products. Process specialization takes place alongside product specialization (White and Irwin, 1972). Calves may be sold or transferred to feedlots for fattening, hog operations may specialize in one stage of animal production. Feed may be purchased along with other supplies and custom services. In this respect, the MDF reflects a radical reorganization of agriculture that has taken place over several decades. While many land-based and labour-intensive activities remain a part of farming, other processes or activities have been supplanted or taken over by processors and by firms providing inputs and services to farmers. Activities that were formerly part of the farm sector economy, including some that involved adding value at intermediate or final stages of production, have been appropriated by non-farm firms (Goodman and Redclift, 1991).

In this sense the MDF may be more specialized than the counterpart MSF operation of earlier decades, not to mention the CMF which was more diversified in all respects. Compared to the MSF, with its reduced set of traditional crop and livestock commodities, the MDF may be engaged in the production of more kinds of crops, and perhaps more exotic forms of livestock. On the other hand, many aspects of process specialization have continued to transform the character of farming.

The CMF had different implications for diversity and bio-diversity at the field, farm, and landscape levels. The CMF frequently included mixed stands of tame hay or feed grains. Combined with smaller fields and less use of chemical pest control agents, this reduced negative impacts on wildlife and beneficial predator populations. The MDF, like the MSF, is likely to feature pure stands of specialty crops on a fairly large scale, (e.g. alfalfa for export). Where livestock is present, it is more likely to be an intensive form of animal agriculture, on a large scale. These developments involve a loss of diversity at the field and farm level, and may increase ecological risks and impacts.[1]

Process specialization implies increased reliance on non-farm resources and technology. MDF operators depend on a wide variety of technological and informational innovations, and are tied into networks that transcend or bypass their local communities, commodity groups, and farm organizations. Producers need to be able to negotiate government and business bureaucracies in order to access project-specific sources of capital. The cumulative effect of this change in the human capital necessary for the successful MDF operation is to hasten the demise of apprenticeship models as a way to gain farming skills and entry into farming. Producers now need advanced education—indeed, a broad education and non-farm work experience is one route to successful diversification.

For the CMF, self-provisioning was important in the selection of crops and livestock. Larger households and limited incomes encouraged home production and consumption. Self-provisioning also meant that a significant proportion of farm production was consumed or used in other parts of farm production processes. The CMF supplied many of its own inputs, capturing the value that was added in the process. Milk cows provided dairy products for the farm household, and for local markets, while skim milk—which farmers today buy commercially in feeder pig rations—was fed to pigs. Dockage from grains was fed to chickens. Poultry provided meat and eggs, as well as cash income for some members of the household. Horses might be sold but were raised primarily as draft animals. Grains and fodder crops were fed to farm livestock or marketed directly. Animals could be butchered for household use or shipped to regional markets.

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[1] Sometimes these impacts are second and third order effects from changing farm practices due to specialization and increasing scale. For example, many herbicides used today carry a label warning that crop residues from sprayed crops, e.g. straw and chaff, should not be fed to livestock. As a result, farmers should not bale crop residues produced using expensive fertilizers, nor should they let cattle out in the field after combining--a practice which allowed cattle to forage for lost grain and missed swaths, and graze in grass-filled potholes. This practice of gleaning also meant that farmers would leave crop stubble standing over winter which trapped snow and helped prevent soil erosion from wind and spring run-off.

Alternative production pathways and end-uses provided some flexibility as market and agronomic conditions changed. Changes in the relative prices of livestock and feed grains, for example, could be met by changes in feeding regime or livestock numbers. Wheat was the key cash crop for most farmers and remained the lynchpin of the farming system. The self-provisioning farm had implications for other parts of the production system. Fewer inputs had to be manufactured, financed, and transported to the farm, and the need for "middlemen" and marketing was also more limited.

Technology, Flexibility, and Control. The technology of the CMF could be characterized as low input and relatively low tech. The MSF moved to a higher level of input use involving a mix of low and higher tech products. The MDF is also a high input regime, and there is much more emphasis on high tech and very high tech, i.e. advanced microelectronics, computers, biotechnology, and specialized equipment. The cost of inputs accounts for a very large part of the total cash flow, and many of these industrial inputs come to the farm as "black boxes." Farmers may have little direct knowledge of their mode of action or their engineering, and little ability to fix, to modify, or to evaluate the formulations and machine components involved.

The MDF involves both gains and losses with respect to flexibility. Machines, chemicals, and specialized genetic materials alter the parameters of production. New crops give the farmer more choice and ability to modify traditional rotations. On the other hand, investments in specialized equipment or facilities may preclude easy shifting of resources as market conditions change. As has increasingly been the case in the MSF, the cost of these capital inputs may also force the farmer to concentrate on one or two commodities that promise a more favourable return (Gertler, 1992). In these aspects, the MDF may be rendered less flexible than earlier diversified forms.

Whereas the MSF depended upon government services, universities, and input suppliers for production advice, the MDF operator relies upon additional sources of information. Processors, brokers, and specialty business groups provide knowledge and technical support for specialized products and processes. Processors and input suppliers may also have greater control over on-farm production as a result of contracting, licensing, and other forms of vertical integration with MDFs.

Business Strategies and Sources of Capital. CMF operators were innovative out of necessity, modifying or building their own machines, or adapting production practices to particular circumstances. Yet the CMF operator was also typically conservative with respect to investment in new products or adoption of new approaches. The orientation was more likely to be risk-minimization than profit-maximization. The emphasis was on security of tenure and income, rather than on growth and expansion. Strategies for survival and reproducing the CMF were more likely to focus on persistence and flexibility at the same scale, rather than growth. When growth was achieved, the pattern was typically one of purchasing additional farmland, but making no important changes with respect to production processes or capital inputs. This can be contrasted with the MSF whose rapid expansion brought with it greater specialization, which then encouraged even more expansion. This strategy of specialization and extensification was designed to capture the returns generated by increasing scale in the context of declining profit margins.

The CMF had little or no access to credit for large expenditures, such as land. Farmers either had to build up their own capital pools to finance expansion of the farm, or had to borrow from family, friends, or neighbours. Another alternative was co-operating to reduce capital costs, for example, through formal or informal machinery sharing arrangements.

As for the MSF, the role of credit is crucial for the MDF. The MDF farmer has relatively easy access to credit, and credit decisions made by financial agencies and institutions are increasingly based on formal criteria concerning specific projects. Funding for capital intensive MDF ventures may also come from special purpose lenders and special purpose funds designed to encourage diversification. The MDF operator is more likely to borrow and to undertake investments in pursuit of profitable enterprise options. Markets and capital permitting, the pattern of the MDF is one of expansion and intensification. Output and capital resources are increased, but with a new mix of production factors and products.

Sometimes, diversification is a way of intensifying and increasing cash flow without increasing the land base. MDF operators may acquire resources through joint ventures with non-farm business firms. Like the MSF, the MDF may be enlarged by renting land or by purchasing additional acreage. The latter normally involves securing a mortgage with a commercial lender. Where land is leased, cash rental is increasingly supplanting crop-share arrangements. This frees the farmer from restrictions that the landlord might place on his crop mix. However, short-term cash rent rates are typically volatile, and thus may increase pressures on the farmer to find a crop that will ensure a good return.

Markets. The CMF produced a broad range of products for farm use, for local markets, and for export commodity markets. The MSF generally sold a narrow range of products into state regulated general commodity markets. In the context of globalization, deregulation, and free trade, the MDF is more likely be selling in open markets or under contract in vertically integrated and coordinated markets. Specialty crops and specialized livestock are bought and sold via specialized marketing channels, many of which have the characteristics of niche markets. These markets offer opportunities for higher returns but can easily become saturated or over-supplied with higher volumes of production. The farmer then faces the problem of finding new outlets or finding new uses for specialized machinery and facilities.

On the MDF, relatively little is produced for direct consumption. Farm families are smaller. The range of products produced is narrower, and the quantities are too great to be consumed effectively on-farm. Grocery stores are accessible. Tastes have changed. Preparation and processing skills have been forgotten or put aside. While some still retain these activities as a sideline, there is little tolerance for the drudgery that accompanied many of these labour intensive processes. Expectations with respect to standards of consumption are higher. People are busy with the management of diversified, capital-intensive farms, with off-farm employment, and with other activities such as formal education or recreation.

Farm Household Characteristics and Social Economy. Historically, the CMF was closely linked to a set of social objectives ranging from provision of a dignified retirement for the older generation, to establishment of new farm operations for maturing sons. The MDF is also socially embedded, but some of the strands have been loosened. The farm may be viewed more as a business, and somewhat less as a way of life. Economic rationality figures more heavily in day-to-day operations and in long-range plans. Resources such as land become part of an intergenerational business plan. Children may or may not return to the farm, but they will still gain equity in it. Those children without responsibility for production may develop landlord-like relationships with those left on the farm. The farm is passed on to the next generation, but the lifestyle is transformed.

Sometimes CMF household members worked off-farm to supplement returns from farming, but off-farm employment was not typically a major source of revenue. Employment for women was normally as teachers, clerks, or domestic workers, and for men was on the railroads or other farms. Whether working in homes or on farms, it was fairly common to receive payment in the form of commodities or finished products, such as clothing, material, meat, or seed.

The CMF utilized the capacities of all members of the household. Women and children, the elderly, and even those with disabilities were integrated into the productive activities of field, farmyard, and home. Families responded to the requirement of daily chores as well as to seasonal peaks in demand for labour around planting, haying, and harvesting. This often involved some coercion and exploitation, and some family members would have welcomed relief from their daily and seasonal chores. On the other hand, as farming systems evolved towards the MSF and MDF models, the integration of all family members into productive involvements with the farm enterprise became less certain, and often more problematic. The activities that have been shed by the farm, or appropriated by the non-farm sector, have often been those in which women, children and the elderly had important roles—processing, poultry and livestock raising, and household provisioning activities.

Specialization has intensified seasonal labour demands. Like an electric utility, farmers must equip themselves to meet these peak demands. This has meant greater investment in machinery and continued use of seasonal/hired labour.[2] During the rest of the production cycle, labour requirements are relatively low and can be met, for the most part, by one operator. This has contributed to the tendency by farm youth and farm women to seek off-farm employment. It is also the context in which initiatives by women to start farm- or home-based businesses occur. The first objective may be income to meet family needs. The second objective may be to have employment near the home in light of the long distances many rural people have to drive to work. There is frequently a third social factor involved: women seeking to reclaim their rightful place in the household and community as "producers," "operators," and "managers."

In some instances women have been actively recruited back into farming activities given the high cost of hired labour and the absence of the younger generation who are now more likely to be working or studying in an urban centre. Moreover, the skills and dedication needed to manage contemporary diversified (specialty) operations (MDFs) make it much more difficult to rely on non-family hired labour.[3]

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[2] These intense seasonal labour needs are accompanied by the use of the full complement of the farm's machinery. Because there is a short time to harvest in order to ensure the highest possible yield and grade, and to avoid bad weather, MSF farmers are generally adverse to sharing equipment. Thus each farmer buys a complete set of equipment, and must be able to make this investment pay off.

Networks and Community Dynamics. Along with technical aspects of MDF production, these marketing arrangements carry implications for the social dynamics of farms and local relationships. Although multi-household enterprises are more common for the MDF than for the other categories of farm in this typology, specialized products and production processes may reduce opportunities for sharing or mutual assistance among farmers that are not business partners. Membership in specialized commodity organizations provides contacts beyond the locality, but may also diminish the intensity of local community life. The political implications may be considerable where allegiances and focus shift from general farm organizations and mainline commodity groups, to specialty product business associations. In general, a shift to narrower, more competitive niche markets could be expected to lead farmers to view each other more as potential competitors and less as producers with common interests and circumstances. In some limited contexts, however, farmers—particularly those producing non-traditional crops without established markets—may attempt to band together to create clearinghouses or marketing pools as a way of gaining some control over an uncertain or undefined market.

There are additional implications as control over markets and technologies shift to specialized middlemen. The archetypical CMF was involved in open or regulated commodity markets in which there was relatively widespread sharing of price and product information. Publicly supported development of breeding materials was typical. The MDF operator may sell into markets that are relatively closed, secretive, and unregulated. Likewise, the farmer may be beholden to suppliers for technical support or specialized breed stock, or closely tied to a processor—as in the case of pregnant mare urine (PMU) producers. While there may be new opportunities for profit, there are greater risks of predatory business practices, and of loss of autonomy. Processors, brokers, or suppliers may assert control over aspects of life that farmers would normally have considered their own prerogative, e.g. production practices or deciding with whom to share information.

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[3] Since 1991, the Census of Agriculture has recognized that many farms have more than one "operator" i.e. "those persons responsible for the day-to-day management decisions made in the operation of a census farm or agricultural operation." In 1996, 28% of Saskatchewan farms reported two or more operators.

The MDF operator produces high value commodities, and may also sell inputs or services to other farmers. Neighbours may be viewed as potential customers or clients, or as competitors. This likewise has the potential to modify the character of social relations and to reinforce a privatized, "mind your own business" approach to community life. Commoditized exchange helps to generalize and naturalize business practices and approaches as those which are primary and constitutive of all forms of social interaction. As a result, involvement in other forms of social and community organization may be neglected.

If successful, the MDF entrepreneur may have capital with which to make other investments. However, successes in business development may not provide a groundwork on which to address broader community economic development issues. The social effects of the MDF model may include differing interests, divergent world views, and greater social distance. Given time constraints and personal orientations, successful entrepreneurs may or may not take an interest in community development. Where they do, social and economic inequalities may inhibit broad-based mobilization on aspects of development that cannot be addressed through private initiative. Social stratification is generally not conducive to community cohesion and collective action (Flora et al., 1992). It is predictable that this fracturing of interests and social cohesion will translate into a reduced ability to affect farm policies or to organize for greater market power.

3.0 Trends in Diversification

While the typical Saskatchewan farm of the 1930s and 1940s had wheat as its primary cash crop, it also produced an array of other crops and livestock products, including milk. Today, there are more crops and livestock alternatives available to Saskatchewan farmers, but most farms have become highly specialized as to enterprise type and are also much larger than their predecessors. The diversity that exists today appears to be concentrated in a relatively limited number of farms: the minority that are producing a fairly large number of different crops and/or livestock.

Diversification and specialization can be measured several ways. One estimate of diversification can be made using an entropy index, a measure of dispersion, uncertainty, and dividedness (Theil, 1972). It is mathematically expressed as:

$$H = \sum_{i=1}^{n} p_i \log (1/p_i)$$

where

p_i = proportion of i^{th} category
log = natural logarithm
n = number of categories

In this case, we use the entropy index to measure the relative diversification or specialization (over time) of field crop and livestock production respectively, in Saskatchewan. The entropy index for field crops was calculated based upon the acres planted to each category, or type of crop, according to the Census of Agriculture. The entropy index for livestock was calculated using "Livestock Equivalent Units" or LEUs. Horses, dairy and beef cattle were each weighted as 1 LEU; sheep and lambs were weighted as 0.1 LEU; pigs were weighted as 0.25 LEU; and poultry was assigned the weight of 0.005 LEU. Entropy index scores could fall between 0 and 1, with 1 being absolute diversification given the constraints of the production environment, and 0 being absolute specialization of enterprises. Home gardens were not included in this calculation.

There are those who argue that Saskatchewan agriculture has become more diversified at the provincial level, even as individual farms have become more specialized (White, 1994). As can be seen in Figure 3-1 (all figures are to be found in the Appendix), over the long term, Saskatchewan has become more diversified in terms of the mix of field crops planted. The first half of the century was marked by a limited mix of field crops, such as spring wheat, oats, barley, rye, tame hay, and flax seed. There were also small amounts of potatoes, and very modest quantities of turnips, peas, buckwheat and fababeans. The 1940s saw the introduction of canola and durum wheat, but also the virtual disappearance of peas, fababeans, buckwheat, and turnips as market crops. Several of these latter crops were to return again in the early 1970s as new specialty crops. Led by public investment in research and extension, an important effort was mounted in the 1980s to develop a broader range of specialty crops. The result has been a more diversified provincial commodity mix represented by index scores above 0.6 throughout the 1980s and 1990s. The LIFT (Lower Inventories for Tomorrow) Program of 1971 had a dramatic short-term impact on diversification by reducing the amount of acreage planted in wheat.

The situation is significantly different for livestock. Indeed, although a provincial level entropy index is not sensitive to questions of spatial distribution or concentration, one might reasonably conclude that the overall reduction in farm-level diversity must be significantly due to the effect of specialization and concentration in the livestock sector. As can be seen in Figure 3-2, the province was quite diversified in regards to livestock for the first half of the century. After a peak in 1943, the province began to get more specialized, with significant declines in many types of livestock in the 1950s and 1960s. Some of this decline is accounted for by the substitution of mechanical traction for draft animals. However, more important is the rise in the importance of beef cattle vis-a-vis other livestock, and the decline in the number of milk cows which occurred with the introduction of industrial dairies and milk quota. The effect of herd and flock consolidation (and reductions) in sheep and poultry also helped to reduce the diversification of livestock production, though the impact on the entropy index was relatively modest.

The process of provincial specialization in livestock is revealed in trends related to the number and percentage of farms with different kinds of livestock. As shown in Figure 3-3, the average number of cattle and calves per farm reporting this type of livestock rose from 58 to 108 head between 1971 and 1996, while during the same period the average number of pigs per farm reporting pigs increased by a factor of 6 from just over 40 to 266 (Statistics Canada, 1998). The total number and share of farms with livestock has been steadily declining, however, as shown in Figures 3-4 and 3-5. In 1996, just over 40% of Saskatchewan farms had cattle or calves, down from 59% in 1976. Only 5% of farms had pigs in 1996, as compared to approximately 34% in 1976. In the context of an overall decline in the number of farms, the result was an even faster decline in the total number of herds.

A custom analysis of the 1981, 1986, and 1991 Agricultural Census was undertaken in order to examine the relationships between (on-farm) agricultural diversification in Saskatchewan and a variety of social, demographic, and economic factors. Diversification, in this instance, was defined as the number of enterprise types present on a given farm. Wheat of any kind; other cereals including oats, barley, rye, mixed grains and triticale; fodder crops; pulses; oilseeds; other specialty crops; horticultural crops; dairy cattle; beef cattle; pigs; poultry; sheep; horses; goats; rabbits; mink and fox; other livestock; and bees were each considered a single enterprise. For example, a farm was considered to have one enterprise if only spring wheat or beef cattle were present. If both were present, the farm was counted as having two enterprises. If wheat of any kind, oilseeds, and pulses were grown in the particular census year, the farm was credited with three enterprises.

Overall, the analysis of farms by number of enterprises shows a progression to greater specialization between 1981 and 1991.[4] In the following sections we present bi-variate results (only two variables at a time) for selected social and economic (i.e. structural) characteristics of Saskatchewan farms, and the number of enterprise types (a measure for specialization or diversification) over three census periods: 1981, 1986, and 1991.

Age and Gender. The age of the farm operator was found to have a fairly strong relationship with level of diversification.[5] As shown in Figures 3-6a, 3-6b, and 3-6c, the youngest and the oldest farmers tend to be involved in the most specialized operations. Although these census data do not allow us to follow individual farms over time, it seems likely that farmers gradually add additional enterprises as they reach middle age (and accumulate more land and capital). As other researchers have observed, the family cycle which leads to increased availability of family labour as children become old enough to contribute, the growing need for income, and the presence of potential heirs, all contribute to expansion and diversification in the middle years. As farmers approach retirement age, their farms may again tend to become more specialized —even more specialized than the operations of beginning farmers.

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[4] This trend appears to continue in the 1996 census despite on-going diversification in crop production.

[5] Not until the 1991 Census of Agriculture was there any provision for reporting >1 operator.

It is important to note that this effect appears to intensify over time. All the age categories show increased specialization as we move from 1981 to 1991. The subset of farmers in the two youngest categories (<25 years and 25-29 years) became more specialized between 1981 and 1991. Older farmers also appeared to begin the transition to specialization at an earlier age in 1991 than in 1981.[6]

Given the large disparity in numbers between male and female operators, it is difficult to make valid comparisons or to draw conclusions as to the effect of gender of (principal) operator on diversification. As shown in Figures 3-7a, 3-7b, and 3-7c, only 2.2% of farms in 1981, 3.1% in 1986, and 4.4% of farms in 1991 are classified as being operated by women. It appears, however, that female operated farms were less diversified than those operated by men. In these census years, female farm operators were on average older, and operated smaller farms, than males. These are both conditions associated with higher levels of specialization.

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[6] It is important to note that many of the other bivariate relationships analyzed may be confounded by the age of the operator—or by other factors such as farm size. The only way to get a precise measure of the absolute effect and relative importance of each of these separate independent variables (factors) would be to undertake a multivariate analysis on the whole range of variables simultaneously (allowing one to "control" for the effects of all the other independent variables and to partial out the effect of the particular variable of interest). Research of this nature requires access to complete census forms for actual farms, rather than aggregated data for particular variables. Such research would be quite expensive and typically requirer working on-site at Statistics Canada after having been dully sworn to uphold the confidentiality of individual census respondents.

Land Area and Tenure. The relationship between total farm area and diversification is similar for the three census years analyzed (see Figures 3-8a, 3-8b, and 3-8c). Generally speaking, the larger the farm, the more diversified in terms of numbers of enterprises. This relationship appears to hold up to approximately 3500 acres at which point the trend starts to reverse. The share of farms in any size category that is highly specialized is significantly higher in 1991 than in 1981. In 1981, approximately 43% of small farms in the 70-239 acre range had only one enterprise. By 1991, that figure had jumped to 50% for this size category. In 1981, approximately 30% of farms in the 240-399 acre range, and nearly 20% of farms in the 400-559 acre range, had only one enterprise. The relevant statistics in 1991 were close to 37%, and nearly 23%, respectively. In 1981, just over 10% of farms in the 560-759 acre range had only one enterprise. In 1991, the corresponding figure was approaching 20%. The 1986 figures indicate that the progression to specialization in every size class was advancing steadily between 1981 and 1991. It also appears that the rate of increase in diversification flattens out once farms get quite large, in the range of 1600 acres (2 1/2 sections) and above.

Over time there has been a trend to increased rental of land—more farm operations include at least some rented land, and a greater percentage of the total farmland in the province is rented as opposed to owner-operated. This rental category includes both land that is farmed under cropshare agreements and land that is rented for a straight cash payment (and the latter form has gradually increased in popularity at the expense of the former). In all three census years analyzed, as shown in Figures 3-9a, 3-9b, and 3-9c, it was those farms at either end of the spectrum that were least diversified: those with no rental land and those operating farms in the 91-100% rented category. Although multivariate analysis would be necessary to confirm this supposition, it seems likely that the effect here is, in part, related to age. Young farmers tend to start with rented land, and older farmers more often operate farms that are 100% owned as opposed to rented. The relationship between renting and specialization is fairly flat across all the middle categories.

In essence, there appear to be three separate situations and related strategies represented in this data. Those with no rental land would appear to have less need/opportunity for diversification. Those with only rental land may also face constraints on diversification. In between, it seems to matter less whether the farm is mostly in the rental or mostly in the owned category. Perhaps other factors intervene. This is an issue for further investigation.

Farm Receipts and Farm Capital. As seen in Tables 3-10a, 3-10b, and 3-10c, in all three census years analyzed, the most diversified farms are those that have the highest total farm receipts. Total receipts and number of enterprises appear to be strongly correlated across all categories. This is to be expected as somewhat larger farms tend to be more diversified, and because many of the commodities that would be counted as additional enterprises generate, on average, higher returns per acre than traditional cereal grains. In each of the census years studied, over half the farms have total farm receipts below $50,000 and these farms tend to be specialized, i.e. to report agricultural commodities belonging to just one or two enterprise categories as we have defined these here.

Farms with higher levels of total capital are apt to be more diversified than their smaller neighbours, as is shown in Figures 3-11a, 3-11b, and 3-11c. An exception to this trend is found among farms valued at over $1,500,000 in 1991—a category that comprised only 2.1% of Saskatchewan farms in that year. These farms were slightly more likely than farms in the next smaller category to have only one or two enterprises. Between 1981 and 1991, the average farm in all but the highest categories of capitalization—generally above $500,000—became much more specialized. As with the relationship between farm size (expressed in acres) and diversification, the effect of increased capital tapers off after a certain point—after about $500,000 total capitalization. Given the capital intensive character of farming in Saskatchewan, adding more enterprises may requires a significant investment of capital. This also relates to our observation that diversification today often involves multiple specializations.

Farms with no debt were also the least diversified in 1986 and 1991, as shown in Figures 3-12a and 3-12b (these data were not collected in 1981). A moderate amount of debt seems to be associated with diversification. As farms/farmers become highly leveraged, surpassing a debt to equity ratio of 60%, diversification decreases. Debt has a complex relationship to diversification and this relationship likely interacts with other factors such as age of operator, size of farm, and off-farm employment. One possible scenario would be a farm with little debt, low total capital, low farm receipts, and little diversification. Another scenario might be a larger farm that has taken on considerable debt both to expand acreage and to add additional kinds of production to the mix.

Types of Farm Organization. Hutterite Colonies are by far the most diversified type of farm organization. Over 90% of Hutterite colonies (farms) reported agricultural activities corresponding to 8 or more of our enterprise types in 1991. With the exception of the "other" category, which includes trusts, estates, and cooperatives, Hutterite colonies are the only type of farm organization to become more diversified between 1981-1991 (see Figures 3-13a, 3-13b, and 3-13c). It is important to note that these Hutterite farms also occupy the highest categories in terms of "farm receipts" and "total farm capital." Institutions, such as prison farms, university farms, and research stations, have a bimodal character—they are either very specialized or very diversified. Not surprisingly, the least diversified type is the community pasture. Among all the other kinds of farm business organization, family corporations and verbal partnerships reported the largest number of different enterprises (according to our schema). Written partnerships following close behind. The presence of multiple operators appears, in general, to be positively correlated with diversification. In spite of their relatively large size and capitalization, however, non-family corporations were the most specialized type of farm business organization.

Farm Type. As shown in Figures 3-14a, 3-14b, and 3-14c, all types of farms (as classified by principal product) became less diversified between 1981 and 1991. The principal type of product produced by a farm, however, was strongly associated with the level of diversification or specialization.[7] With the exception of poultry operations (0.2% of farms), farms with livestock tend to be among the most diversified, especially farms reporting beef cattle (15.4%), dairy cattle (1.3%), or mixed livestock (2.4%). This is not surprising as most farms with livestock have tended to also raise crops. In some instances, beef cattle are counted as part of a farm enterprise even if they are always kept on a provincial or federal community pasture. "Other small grain farms" (24.2%) are also among the most diversified. Wheat farms (50.8%) are moderately specialized, with approximately 30% of farms having one, and 30% having two enterprises each. Specialty farms (1.6%), often heralded in the 1990s for adding diversity to Saskatchewan's product mix, are among the least diversified, along with farms classified as "other field crops" (1.6%).

Labour, Wages and Work. The availability of labour and the opportunity cost of labour could be expected to have impacts on farming strategies pertaining to specialization or diversification. Indeed the census data for the three periods under study shows some strong and consistent relationships between off-farm employment (for the operator) and level of diversification. In 1991, as in the other years studied, there is a negative relationship between high levels of off-farm work and on-farm diversification (Figures 3-15a, 3-15b, and 3-15c). Significant involvement in off-farm work seem to be associated with simplified farming systems that require less management. Interestingly, the relationship between days worked off-farm and number of enterprises (diversification) remains fairly flat across the first three categories reported (i.e. up to 60 days worked off-farm). If anything, there is initially a slight increase in diversification as one moves from zero days worked off-farm, to 1-19 and 20-59 days worked off-farm. In other words, modest amounts of off-farm work to have little effect on levels of diversification of the farm operation in the Saskatchewan context.

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[7] According to the Census of Agriculture, type of farm is determined by estimating the potential receipts from the inventories of crops and livestock reported. "The commodity or group of commodities which accounts for 51% or more of the total potential receipts determines the farm type. For example, a census farm with derived total potential receipts of 60% in dairy, 20% in beef cattle, and 20% in small grains, would be classified as a dairy farm" (Statistics Canada 1992: 108). For the purposes of our own study, this farm would be categorized as a dairy farm with three enterprises.

The use of hired farm labour is strongly linked to level of diversification (Figures 3-16a, 3-16b, and 3-16c). Hired labour (family or non-family) is positively associated with the number of enterprises. Farms that hired labour also tended to be more diversified. In the Saskatchewan context, more diversified (and larger) operations would tend to have greater need for, and greater capacity to, hire labour. One strategy that may account for specialization among the farms without paid labour, is a focus on highly mechanized cereal production. In 1981, slightly over 30% of farms reported hired labour. This increased to 45% in 1986 and then declined slightly to 43% in 1991. Although the relationship is less consistent, the total weeks of paid labour also tends to be positively related to diversification in all three census years studied.

The connection between non-family wages paid and diversification is not so clear-cut (Figures 3-17a and 3-17b). Less than one-third of Saskatchewan farms pay non-family wages. While moderate amounts of non-family wages are associated with additional diversification, after $25,000 the relationship becomes more in determinant and may even reverse. Higher levels of non-family wages are sometimes associated with simpler, more specialized, farming systems.

The relationship between diversification and the amount of family wages paid appears stronger than any link between the amount of non-family wages paid and the number of kinds of enterprises reported (Figures 3-18a, 3 -18b, 3 -18c). As shown in Figures 3-19a and 3-19b, it appears that farms that paid significant amounts of family wages tend to be the most diversified. This may reflect, in some instances, a self reinforcing dynamic. Family labour allows farms to expand and diversify, and diversification creates more opportunities to involve family members on a paid basis. The payment of wages based on expanded returns encourages greater participation by family members.

4.0 Case Studies in Diversification

4.1 Introduction and Methodology

In this section 25 case studies in agricultural diversification are presented and discussed. The cases are summarized in table form in order to preserve the anonymity of producer-informants.[8] Potential cases were identified by various methods: stories in the farm press, referrals from professionals in the sector, and recommendations by producers and managers we interviewed. Several criteria were used for selection of the enterprises that were ultimately included in this study. We sought a representative range of situations and businesses but focused on the more common forms of agricultural diversification in Saskatchewan. We wanted to capture much of the diversity (in diversification) but generally excluded operations that were very unique and unlikely to be reproducible.

The projects selected reflect various scales of operation and levels of complexity. We also considered geographic distribution and type of organizational arrangement. Our objective was to include an array of cases that would allow us to study how social relationships and organizational innovations impact on diversification. The cases highlight challenges and frustrations as well as achievements and success.

Table 4.1 begins with diversified farms and farm-based businesses. The operations in this category have diversified into various livestock or speciality crops, or are directly involved in processing or specialized marketing of agricultural commodities.

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[8] On-site interviews were conducted with managers of each enterprise between April, 1995 and February, 1996. The semi-structured interviews typically took 1 ½ to 2 ½ hours and included a tour of the enterprise. Additional information was gathered from reports, articles, and company documents. Further background information was provided by officials in local government and development agencies.

The farm-based businesses are directed at sectors ranging from tourism to manufacturing. As we move towards the latter half of Table 4.1 the enterprises tend to get bigger (by rural Saskatchewan standards) and more organizationally complex. These agriculturally-based joint ventures typically involve multiple partners some of whom may not have direct connections to farming.

Table 4.1 highlights significant social, economic, and organizational features of the profiled enterprises. Column one uses key words to identify and describe the particular diversification enterprise. Column two describes the "Business Form" or organizational structure under which the enterprise operates. "Household and Labour Relations" directs attention to the critical links between family labour and enterprise; between ownership, management, and labour; and between farm and off-farm activities. The fourth column highlights "Organizational Innovations." This category includes technical and social innovations that range from new products and processes, to new forms of collaboration and co-operation.

Key aspects of the "History and Context" of each enterprise are summarized in column five. This category documents the circumstances, conditions, attributes, and motivations that have contributed to the particular diversification initiative. "Public Agency and Industry Links" lists the most important external connections to capital and information. These include relationships with government agencies and connections to other organizations and associations. The final column on "Local Linkages and Challenges" draws attention to local and regional factors that have supported or challenged the particular enterprise. The factors include local resources and networks, and various impediments to market access.

One could say that each farm and business in the province arises out of unique circumstances: a particular mix of resources, opportunities, capacities, and preferences that combine with factors such as location, climate zone, familial cycle, land tenure, and local community connections. The 25 farms and businesses documented in our sample exhibit distinctive features that resist easy categorization. Roughly half of the operations sampled could be classified as diversified farms or as farms with an allied business related to agriculture. This includes several farms involved in specialty crop and/or livestock production. Many of the diversified farms were also involved in processing in order to gain access to new markets, and to capture a greater proportion of the final market value. Several of the farms were involved in direct marketing to consumers.

Other entrepreneurs in our sample have used the farm as a launch pad for entry into other kinds of business such as manufacturing, tourism and hospitality, or specialized producer services. In some instances the add-on activity has become more important than the original farming enterprise. Some ventures are joint projects with neighbours or other partners, and have not substantially altered the character of the home farm operation(s). Such facilities may be located at an off-farm site, even in a town or smaller city, in order to make possible expanded operations, access to transportation, and sharing of facilities. Off-farm diversification ventures may or may not involve a large proportion of the capital and labour time of the farmer investors. In some instances the investment is made indirectly, via a farm organization.

Table 4.1 Case Studies in Diversification: Summary of Social and Organizational Factors

	Business Form	Household and Labour Relations	Organizational Innovations	History and Context	Public Agency and Industry Links	Local Linkages and Challenges
Grain and specialty crop farm with cow-calf operation	Sole proprietorship.	One principal operator. Spouse works off farm as teacher. Long-term seasonally hired man critical to farm operation over two generations. Casual labour employed for cattle operation.	Substantial cow-calf herd plus diversified crop rotation on expanding land base. Caraway and dill recently added to cropping system. Polish canola used as a companion crop for caraway. Farm includes 450 acres of native pasture preserve.	Farm inherited from parents. Demise of Crow, made conventional crops less remunerative. Neighbour innovator provided model. Mother's knowledge of garden-scale spice production also critical.	Self-funded. Experience on FDRB provided information on diversification, management experience, and industry contacts. Member, Herb and Spice Association.	Neighbour provided seed, advice on spice production and markets. Collaborated in on-farm research. Markets through specialty crop broker in region. Strong community connections through hockey .
Family stock farm, B & B	Family farm and tourist business, with share in small abattoir and meat shop.	Couple partners in farm and farm-based business. Casual employees only on farm. Meat business provides full-time employment for local youth who trained at technical college.	Husband, wife own cattle. Husband partner in meat business. Converting to grass, network with HRM families. Bought second house for B & B. Market via tourism directory and church network.	Brothers farmed until couple took over. Wind erosion led to experiments with chem fallow. Opted for grass and cattle as sustainable system. Had investment in local feedlot with brother.	B & B listed in TISASK. Small REDA loan to working partner in meat business. REDA assisted with feasibility study. FCC loan to farm. NISA participants.	Strong ties to local community and church. Ties to family, e.g. farmer nephew exchanges labour for machinery; father of wife located used abattoir equipment
Mixed farm and pregnant mare urine operation (PMU)	Family farm, one (female) owner-operator. Operator took over management when spouse died, and other relatives involved sought to exit operation.	Three children live at home, including teenage son who works with cattle herd. One full-time (seasonal) hired labourer, lives on premise, paid monthly salary.	Horses leased from outside party. Urine production (quota) contracted to Manitoba buyer. Barn built to buyer specs. Field reps. (include one female) inspect animals monthly and provide technical advice.	Farm crisis of 1980s catalyst for diversification. Owner-operator has background in nursing and farming.	Government loan on land. CU loan on horses. Family loan for barn. Member North American Equine Ranching Information Council.	Presence of two other PMU operators (one female) in area crucial to establishment and survival of operation. Access to highway, trucking services important.

Table 4.1 Case Studies in Diversification: Summary of Social and Organizational Factors cont.

	Business Form	Household and Labour Relations	Organizational Innovations	History and Context	Public Agency and Industry Links	Local Linkages and Challenges
Pedigreed seed farm with associated livestock operation	Intergenerational production co-operative.	Restructuring due to retirement, death, and financial losses. One principal operator. Female members provide seasonal labour. Sister-in-law has separate livestock operation as do principal operator & spouse.	Sell wholesale to large grain companies. Long-term working relationship with seed cleaner and marketer. Considering sale of shares to non-farm relatives to assist with repurchase of land lost to lenders.	Farmed with father and brothers. Formailized co-operative to make contributions and equity transparent. Purchased land with pedigreed seed crop. Diversified into other seed crops.	Experience as CWB delegate useful in marketing. Former chair of crop insurance board. Also belongs to NFU and local credit union. Borrowing exclusively from banks.	Mobilized seed growers to stage annual seed show in regional centre. Active in local church. Recruitment and retention of quality farm labour difficult. Compete with local manufacturing jobs.
Organic farm and seed processing facility	Verbal partnership: husband, wife, and son.	All partners active on farm. Married son commutes 55 km to farm and runs cleaning/processing plant. One part-time worker. Both wives work off-farm. Future of farm uncertain.	Two generation partnership. Rent additional land from relative. Grow and process organic grains, oilseeds, speciality crops. Market primarily to Europe and USA.	Classic wheat/fallow farm turned organic due to agrochemical costs. Cleaned grain for local farmers, then converted farm to organic. Processing adds value, provides market.	Organic farmer network and OCIA provide support, broker contacts, production, and processing information. SRC used farm as research site.	Close to rail lines and highways. Little use of local services except banking. Parents involved with regional park. Viewed locally as successful diversification.
Diversified game farm and processor	Incorporated farm. Shares owned by husbands and wives in two related households.	Main operator, spouse, and children involved in operation. Male partners have additional off-farm work. Hire seasonal labour.	Sell breed stock, meats and by-products (e.g. velvet, hides, horn) from the farm gate. Produce own grain for feed. Supply meat to local stores.	Early importer of bison. Principal operator worked off-farm. Other family members operated farm. Avid hunter. Built herd slowly. Diversified game operation with help of family members.	Principal operator involved in several game producer organizations. Loans from FCC and ACS. Assistance from provincial agencies promoting speciality livestock and diversification.	Wife provides farm tours and meals. Work with regional meat packers. Work with local Indian reserves on game farming start-ups.

Table 4.1 Case Studies in Diversification: Summary of Social and Organizational Factors cont.

	Business Form	Household and Labour Relations	Organizational Innovations	History and Context	Public Agency and Industry Links	Local Linkages and Challenges
Poultry and fish farm, water treatment systems	Incorporated farm and incorporated water treatment systems company.	Parents, son, and son-in-law principal operators. All family members contribute while pursuing off-farm careers. Other extended family members work on farm.	Family members share key decisions and planning. Fish operation diversified to include hatchery and "grow-out" facility. Develop and market water systems and equipment. Market fish to province and private producers. Share information.	Family moved from another province and relatives followed. Farm purchased with view to future retirement. Farm operation grew to rival urban careers in importance.	Work with SRC and PFRA testing water systems and equipment. SRC provided aqua-culture course and new species. IRAP subsidized research. WDF loan. Network with other fish farmers.	Relatives have moved to area from out-of-province. Provide farm tours, host exchanges. Highway access and within commuting and local call range of city. Participate in local community organizations and events.
Community shared agriculture (CSA) market garden	Sole proprietorship.	Principal owner-operator does some off-farm work. Wife works off-farm. Family members work for produce shares. One part-time employee.	Organic farming and CSA direct marketing.	Twenty years organic gardening experience; carpentry skills used to build solar greenhouse.	PFRA provided CSA information and contacts.	Barters produce for land. CSA shareholders involved in planning. Networks with other CSA operations. Support by local media in marketing.
Community shared agriculture (CSA) farm	Verbal partnership involving three couples: parents and two daughters with their respective husbands. Revenues split between three households.	Intergenerational farm. Daughters and father provide majority of labour. Other three partners have off-farm jobs but farm on weekends. Third generation young but involved.	Shares provide 32 kinds of organic vegetables and fruits. Also sell poultry, beef, pork. Link to shareholders via newsletter, surveys, volunteer farm work. Processing adds value. Share market, surpluses, information via CSA Network.	Grain farm was not profitable. Women sought to expand small market garden. Learned about CSA at PFRA-sponsored seminar.	PFRA provided info on CSA and assisted with marketing. Common Ground Learner Center, SFFAF, Regina Environmental Group, Sask. Rural Life Ministry supported CSA formation.	Creates links to shareholders families in two urban centres. CSA markets eggs, maple syrup, honey from neighbouring farms. Surplus production sold at farmer's markets. Media coverage helpful.

Table 4.1 Case Studies in Diversification: Summary of Social and Organizational Factors cont.

	Business Form	Household and Labour Relations	Organizational Innovations	History and Context	Public Agency and Industry Links	Local Linkages and Challenges
Compressed forage producer and processor	Written partnership between husband and wife.	Partners active in operation and also work off-farm. Several full-time and seasonal employees. Majority from farms.	Sought value-added market to justify irrigation. Researched technology abroad. Brokers facilitate international sales.	Off-farm income helped with purchase of land. Utilized technical experience to design plant.	Financial support from provincial and federal agencies.	Neighbours provide additional forage. Processor does harvesting. Transportation challenging. Utilize local businesses and services.
Berry producer and processor	Written partnership.	Husband and wife share management; seasonal hiring of neighbour women and teens.	Linking to other growers; market via small and large store outlets.	Returned to inherited farm after non-farm career; sought viable enterprise.	Agriculture Canada, Inspections Branch; Horticulture Dept. U of S; PFRA, PARD, ADF.	Use local shippers, suppliers & labour; wholesale via stores and chains regionally and nationally.
Maple syrup producer	Incorporated joint venture.	Five shareholders share work and manage by consensus. Limited family involvement except for wife of one partner.	Joint venture of unrelated partners. Evaporator unit on trailer can be moved between sites.	Initiated by aboriginal partner and a farmer who had consulted PFRA. Several partners have diversified farms. All have off-farm work experience, e.g. school teacher.	PFRA provided information and equipment. Local RDC provided business consultation and had temporary equity position.	Indian partner taps trees on reserve. Other trees tapped on neighbour farms. Final processing in kitchen rented from local restaurant.
Fruit Producers	Joint venture involving a dozen partners from local farm and non-farm households. Considering limited partnership.	Work collectively on major tasks (planting orchard, irrigation installation). Share maintenance tasks. Age range 30-60.	Viewed as social and economic project. Studying options for processing and marketing berries.	Past RDC director originated idea. Friends linked through local Lion's Club became partner-investors. Meetings called to seek additional partners.	PFRA designed irrigation system and funded water tests. Use former RM well in return for upkeep and public access. Seek to purchase former pasture land leased from province.	Local town council supportive. Partners good friends, belong to the same organizations. Credit small town atmosphere with successful formation of joint venture.

Table 4.1 Case Studies in Diversification: Summary of Social and Organizational Factors cont.

	Business Form	Household and Labour Relations	Organizational Innovations	History and Context	Public Agency and Industry Links	Local Linkages and Challenges
Production co - operative and speciality crop processor	Intergenerational production cooperative in joint venture with major co-operative to run speciality crop cleaning plant.	Five member-operators plus 2-3 hired men. Hired manager at off-farm plant. Runs seven days/wk with two shifts/day. Export to Central and South America, Middle East and Africa. Spouses run small businesses locally.	Value-added diversification. Sought partnership with grain firm (which took minority position). JV income split equally among farm members. Farm income split according to land and labour contributions.	Co-operative farm started by three families. Second generation developed seed cleaning business. Formed joint venture to expand at rail line site, included elevator slated for closure.	Used established consulting firm to do feasibility study. Co-operative structure allowed new ventures and partnering with larger organizations.	Original partners in production co-operative farm were neighbours and family. Farm has history of custom work in region. Strong connections to farm and business community.
Trailer manufacturer	Closely held corporation and joint venture with distributor.	Hired general manager; several dozen workers, mostly local. Constant effort to locate skilled labour. Employee compensation above industry average; managers involved in profit sharing.	Sole proprietorship plus investment in partner firm providing parts & distribution. Farm provided base for trailer firm and now custom farmed by neighbour.	Family farm required trailer to transport combine header; manufactured additional trailers on farm in response to local demand.	NRC, SRC provided technical support. U. of Regina Co-op Work Program provided student employees.	Expanded factory in local community despite challenges to distribution and sourcing of inputs Financial and service donations to local projects. Hopes to keep business in family.
Family farm and farm directory company	Family farm and non-family corporation.	Two principal shareholders active in business. Employ 15 sales reps, 5 office staff. Wife of principal runs additional farm-based riding business.	Joint venture initiated by farmer partner. Rural base lends legitimacy. Desktop publishing and sales do not require a storefront.	Principals experienced in agriculture, business, and public service. Saw opportunity to market unique product.	PARD funding to explore US market. PIMA membership added markets. Added input directory tendered by government.	Strong ties in agriculture and business. Local business supportive (credit, etc.). Local post office crucial. Easy highway and city access.

Table 4.1 Case Studies in Diversification: Summary of Social and Organizational actor continued.

	Business Form	Household and Labour Relations	Organizational Innovations	History and Context	Public Agency and Industry Links	Local Linkages and Challenges
Abattoir serving niche markets	Partnership.	Two active partners in operation plus a skilled meat cutter and four casual employees.	Joint venture. O e partner had farn land on which abattoir located. Elected to build federal standard so they could se in other provinces.	Identified business opportunity in niche markets serving ethnic consumers and exotic livestock producers. One partner has abattoir experience. Other partner has MBA.	Food Production and Inspection Branch, Agriculture & Agri-Food Canada provided advice and approved facilities	Serve local specialty livestock producers. Strong links to ethic markets. Transportation challenges: small loads, distance to highway, few carriers, high prices.
Custom Feedlot	Farmer and manager-owned joint venture.	Managing partner and spouse own significant shares. Four farmer partners. Experienced workers mean lower vet bills. Six employees. Managers live on-site.	Cater to smaller feeders with lots of 20-50 head, mo ly for finishing. Go d place for local farmers to sell barley that does ot make malting. Recruit cattle investors via advertising, personal networ s in cattle busines Welcome visitor	Partners bought in because saw need for a feedlot in the area. Local bank provides operating capital. Managers bring experience in agribusiness and custom farming. Cattle volume and profits up and down with interest rates, commodity prices, programs.	Belong to Sask Cattle Feeders Assoc., a small organization. Receive advice, technical support from SAF. Stabilization programs useful but come and go..	Seek additional shareholders. Location facilitates access to markets and inputs. Protected site, good quality water. Captures most economies of size when near capacity. Challenge keeping lot full, balancing shareholder and company interests.
Hog barn and feed mill	Limited partnership.	Livestock management services co. owns 50% of Class A shares and manages barn. When fully operational will employ 5 full-time.	Purchase of ≥4 limited partnersh ɔ units (@ $5000/ nit) entitles investor: to deliver 80 tonne of feed grains to operation. Limite partnership resu s in tax savings fo investors.	Local farmer investors partner with livestock management co. to develop limited partnership. Additional capital raised from bank loans and local sale of debentures.	Directors have links to RDC and SPI. SAF and PFRA provided technical support . Local ACS agents supportive but partnership unable to reach agreement with ACS office.	Directors long-time residents, farmers and businessmen. Banks, credit unions provided loans to investors and partnership. Sharing info. facilitated sale of shares. Access to utilities expensive.

Table 4.1 Case Studies in Diversification: Summary of Social and Organizational Factors cont.

	Business Form	Household and Labour Relations	Organizational Innovations	History and Context	Public Agency and Industry Links	Local Linkages and Challenges
Specialized pulse crop processor	Multi-family corporation.	Two brothers run firm. Eleven full-time and six part-time employees. Some are relatives. Plant runs 24hrs (3 x 8hr shifts), 7 days/wk.	Sell mostly to export markets. Firm's innovation in processing technology boosts quality and attracts custom processing orders from other companies.	Business started by Grandfather. Passed to son and then grandsons. Family has worked many decades with specialty crops; early processors and exporters.	SEDCO/BDB loan, DREE grant., and private bank credit. CSGA a source of new cultivars.	Quality raw product available locally. Hires locally. Local community stable. Banking done in metro centre. Lack of access to rail line a handicap.
Crop processing enterprise	Joint venture.	Plant employs eight. Raw product provided by local farmer-investors.	Local community investors formed co-operative that sought proposals for joint venture. Chose TNC as partner.	Local farmers mobilized to develop value-added diversification project.	WD funded research. Sask Justice assisted with co-op structure and community bond offering. Additional funding received at latter stage from ADF and PAWBD.	Raised capital via community bonds. RDC provided much support. Women active in venture. Product env. friendly. Sought co-op sector partnership but non-supportive due to risk.
Seed potato project	Joint venture involving local farmers; American farmers (with own corporate entity), local community, provincial agencies.	Seasonal labour hired at planting and harvest. RDC hired consultants and development officer. Farmer-investors provided volunteer organizing effort.	International joint venture. Opportunity to diversify and add value to farm operations using upgraded irrigation system.	One of several related agricultural diversification and intensification projects initiated by RDC representing six communities. Community and regional network of business and farm entrepreneurs.	RDC payed development staff and consultants. SIBED grant. PFRA and SaskWater involved in irrigation system. SEDCO loan. SaskTel upgraded cellular service. Federal grant for airport development.	Local community and producers supportive. Natural gas service an asset. Many inputs purchased locally. Railways not interested in small volume. Location makes truck access costly.

Table 4.1 Case Studies in Diversification: Summary of Social and Organizational Factors cont.

	Business Form	Household and Labour Relations	Organizational Innovations	History and Context	Public Agency and Industry Links	Local Linkages and Challenges
Regional meat packer	Corporate joint venture involving marketing board and manager partner. Asian investor own some machinery in plant.	Unionized (male) labour force for processing. Low turnover, hired via family connections, etc. Job training in-house. Rotate line jobs to reduce injury risk.	Joint venture with farmer controlled board as majority owner. Process hogs in unique way to preserve quality characteristics for export markets.	Located in regional city. Bought and expanded small, struggling packer. SPI was interested in developing an additional major outlet for pigs.	City provided access to land for expansion and short-term tax abatement. Marketing board took equity position and guarantees for bank loans.	Excellent water, highway, rail access. Good supply of raw product. Motivated local work force. Share processing technology with anybody interested.
High volume speciality crop processor	Non-family dual corporate structure with marketing and seed cleaning arms.	Two manager partners and a dozen employees. Two 12 hr. shifts. Profit sharing.	Manager partners work closely with farmer shareholders who provide significant share of raw product and capital. Alliance with another processor. Widely dispersed international market.	Founding partners formerly employees of multinational grain company. Investors mostly well established local farmers who grew specialty crops.	Some directors have personal connections to local REDA board.	Founding partners used local network and customer base to raise capital and build business. Local bank provided credit. By-products fed or processed locally. Ship by rail and truck.
Inland terminal and condo storage	Joint venture between farmer-investors and a TNC grain company to build and operate grain terminal. Additional condominium storage space leased to area farmers.	Fourteen original investors took securities course to sell shares. Received commission. Recruited elevator agent from existing grain elevator.	Condominium storage (99-year lease) sold well due to attractive price and convenience. Operating agreement with TNC partner. All CAB grain consigned by terminal to grain company which also has right of first refusal on non-CAB grains.	Organizers called public meeting, attended by 350. Class A shares sold to fund feasibility study. Class B shares sold to finance terminal. Corporate partner recruited. Provided loan and took minority equity position (Class C Shares).	Securities commission held monies in trust until threshold minimum of $1.3 million sold, and other conditions met. Learned from/ modelled on similar terminal projects	Founding board: established farmers, many with university/ business experience. Area supports many of co-operative and community activities. Access to CN and CP lines means when contract with one rail company expires, can potentially switch.

4.2 Analysis of the Case Studies

Business form. Agricultural diversification projects come in many sizes and configurations. While some are family enterprises formally organized as a sole proprietorship, a partnership, or a family corporation, others involve more elaborate business arrangements. These range from production co-operatives, to local consortia of farmer investors and managing partners, to joint ventures involving local investors and transnational corporations. Some of these arrangements are quite complex and break new ground in terms of innovative strategic alliances and multi-level shareholder participation. While no one business form predominates, it is clear that diversification often requires a familiarity with organizational options that go beyond the traditional family farm, and a willingness to work with others with different backgrounds and strengths. Partnerships of various kinds and sizes are commonplace. Scale of diversification enterprise is positively correlated with complexity of business organization but this relationship is not automatic. Some larger enterprises are organized as traditional proprietary firms.

Household and labour relations. Farm diversification projects typically involve more than one household member which means that the quality of familial working relationships becomes a factor in success or failure. In some instances, farm diversification projects are organized specifically in order to provide on-farm economic opportunities for spouses, grown children, siblings, in-laws, friends, or neighbours. Successful sharing of responsibilities, resources, and rewards typically requires "people skills" but likewise frequently hinges on appropriate organizational arrangements. The various kinds of know-how and experience that contribute to the development of a new venture are quite often learned through off-farm educational or work activities. Education in diverse fields combined with a history of high quality employment off the farm are key factors in some of the most successful rural enterprises we studied. This off-farm experience may facilitate diversification projects by contributing capital, cash flow, contacts, confidence, and collaborative skills (the "5-Cs").

Rural people juggle a mix of employment and business activities. Off-farm work is one increasingly common category of household livelihood diversification. It is clear from the case studies, however, that many farm households are involved in off-farm employment even as they seek to diversify the farm business. When rural enterprises hire employees, moreover, it is common to turn to people with farm connections. The availability of seasonal and/or skilled full-time employees can be crucial to the success of rural, agriculturally-based diversification projects. As the scale of some enterprises has increased, the attraction and retention of a suitable work force can become a constraint. A number of enterprises reported that the presence of one or more skilled, long-term employees had been crucial to viable diversification. The hiring of labour (both family and non-family) can play a crucial role in facilitating expansion and/or smooth intergenerational transfer of the enterprise.

Traditional views on the gender-based division of tasks still prevail in many enterprises, however there are growing numbers of exceptions to this rule. While some enterprises are run exclusively by male managers, and utilize an all-male labour force, several of the enterprises we studied were owned and managed by women, or included women as owner-managers. It was also notable that several of the firms studied ran plants with multiple shifts, sometimes on a 24-hour basis. This has implications for work life-family life interactions, and for the ability of certain people to hold such positions.

Organizational innovations. The firms documented in this series of case studies all exhibited some kinds of innovation—minimally, the decision to initiate a new enterprise or activity in which they were not previously involved. These innovations can be categorized as social, economic, or technological. Many of the enterprises were advanced in at least some aspects of each of these areas, but it was most common to find that firms excelled in two of these areas—for example, technical, and economic, innovations. Some firms were only innovative in one of these areas, but the innovation may have been significant enough to affect other important aspects of the firm's operation and performance. Like entrepreneurship, diversification, and success, innovation is a multi-dimensional phenomenon. Firms may not exhibit an high "score" in each of the three dimensions of innovation we have identified, but it is important that they meet certain minimum conditions in each of these management areas. The successful firms were those that excelled in one or more of these areas without falling seriously short in any. It is noteworthy that the most innovative firms in our sample, as measured by a crude scoring of advanced or innovative practices in each of these areas, tended to be mid-sized or smaller operations.

History and context. Each of these enterprises arises out of a specific local context and a particular set of household and farm circumstances. These constraints and opportunities shape the development of the enterprise. The history of any diversification project involves a dynamic interplay between structural conditions and human motivation. The exciting possibility demonstrated by many of these cases is that outcomes are far from predetermined. Innovation gives rise to new opportunities and possibilities. Diversification tends to lead to more opportunities for diversification. Skills learned in the process are applicable to new activities.

Diversification springs from many different roots, and develops by many different routes. In some instances the foundation was put in place by earlier generations who provided capital and land, and established the pattern of combining multiple farm and/or off-farm activities. A factor in many of the cases was the innovative application of knowledge and skills gained in other work or business activities, or through formal education. These prior or simultaneous activities provided both the financial and human capital necessary for agriculture-based diversification.

While some farmers are pushed to try new options because all other approaches have failed, others are searching out opportunities to invest in the regional economy. The starting point may be financial stress or financial success. This has important implications for the availability of startup capital, and for the scale of projects. Some must start with limited capital, and look for less capital-intensive options. Others are building on a diversified portfolio of investments which allows them to spread risk and raise capital more easily.

Successful diversification typically takes a number of years to implement. It may be a strategy associated with expansion or contraction of a farm business. It may come about to facilitate the entrance of a younger person or spouse into farm-related employment, or it may smooth the exit or semi-retirement of a more senior household member. It can be associated with entering or exiting farming. It can be a short-term transitional strategy or a long-term approach to enterprise development. Given the character of family farms and rural communities, it almost always involves the intertwining of social and economic agendas.

Public agency and industry links. Although it is fashionable to discount the contribution of government agencies and public servants, it is clear from the field data that Saskatchewan remains, in important ways, a mixed economy. No projects get underway without some form of government support or intervention, even if the contribution is indirect or relatively minor. The entrepreneurs in our sample have often been entrepreneurial about enlisting various kinds of technical and material assistance from federal or provincial sources. The support ranged from simple loans to multiple forms of technical, marketing, and financial assistance. Some of the larger projects had found ways to tap into as many as half a dozen programs designed to finance infrastructure and promote new business development. Most had accessed publicly funded research. Some had used government employment programs to defray the cost of employees. While some complained about bureaucracy, many more spoke of assistance received from civil servants who provided advice and guidance. Local, regional, provincial, and federal agencies were mentioned with considerable frequency. The most commonly mentioned federal agency was the Prairie Farm Rehabilitation Administration. The most frequently cited provincial agency was Saskatchewan Agriculture and Food.

Some of the managers and operators involved in diversification projects had gained useful skills and contacts in public employment, or as members of public boards and committees. Many respondents reported belonging to industry organizations that provided services ranging from certification, to advertising, to production and market information. Diversified businesses connect extensively with networks of suppliers, brokers, customers, and fellow producers. However, while most of these entrepreneurs were well networked in their sub-industries and regions, some reported difficulties finding and interacting with peers and other crucial counterparts.

Local Linkages and Challenges. Neighbouring was and remains an important social institution/practice in rural Saskatchewan. Diversification can strengthen links with neighbours especially where some form of collaboration or partnership is involved. Specialized production for niche markets may, however, reduce the similarity of neighbouring farms and businesses and thus reduce some of the potential for sharing or mutual assistance.

The formation of diversification projects that involve more than one household or individual investor often depends on pre-existing links through kin networks, local community or service organizations, local government organizations, churches, or sports and cultural activities. These links involve mutual knowledge, trust, and other social ties that encourage co-operation and reliability. These are all characteristics of community and elements of what some researchers call social capital. Diversification projects often rely on coexistence and mutual assistance that have been built up through years of community connections and allegiances. Starting a new business or making an investment locally only makes sense if one has attachments to a place and its people, and has confidence that others will contribute and act in good faith.

Many of the larger initiatives we studied involve complex organizational structures and multiple linkages arising out of long association (between family members, neighbours, business associates, organization members, or community members). Stable communities seem to be a factor in diversification. Networks multiple in healthy communities and are, in turn, factors in the creation and reproduction of community. Networks and networking are important social factors in diversification. Personal and organizational connections are used to raise capital, to link up with partners, to find suppliers, and clients, to learn about programs and regulations, to gain industry-specific knowledge, to recruit key employees, and for reciprocal exchange of social support. The presence of others in the same business is often crucial. These "competitors" are also a network for locating important information, for exchanging inputs and product, for dealing with crises, for negotiating with governments, and for funding joint ventures in research or marketing. For female entrepreneurs, the presence of other women as enterprise managers, as business representatives, as key actors in industry organizations, and as scientists and officials in public service, can be vital both to personal survival and to success in diversification.

Newspapers, including the farm press, local papers, and larger circulation dailies are important local links. A number of our informants commented favourably on the role of the print media in publicizing their initiatives. This was important in terms of visibility, marketing, and pride. It likely also serves a useful purpose in reminding other rural residents what is possible—and what it takes. While journalists may not systematically analyse the social and organizational factors involved, many articles provide information that reveals the centrality of co-operative social relationships, community in its various forms, and organizational innovation.

Local resources and conditions are sometimes a challenge to be overcome. While isolation and low density of settlement are advantages for certain kinds of activity, location and access are frequently cited as difficulties in rural Saskatchewan. Distance and road conditions affect the sourcing of inputs, the shipping of products, and the potential for building a business that provides a service to people. Moreover, distance and density factors may also come into play as a business grows and requires a larger work force. Small communities may lack the appropriate work force, the housing and other amenities necessary to attract such employees. Too often rural industries depend on a disciplined and low-cost labour force, eager to have a job to supplement other household livelihood strategies. There is little innovation in labour relations.

Some of the managers interviewed for the case studies pointed out that their enterprises depended on a rather fragile and endangered infrastructure. While cellular telephones, improved distribution of electricity and natural gas, and well maintained roadways were important, many worried aloud about the potential loss of a post office, bus service, affordable freight service, rail lines, banks, and other infrastructure necessary for their particular business—and for the general prospects of the local region.

Other Issues Arising from the Case Studies. Diversification can be risky—socially and financially. A supportive family and community, and strong networks with other entrepreneurs and with advisors, reduces these risks to manageable proportions. Diversification leads to further diversification both at the level of the individual or household, and at the level of the community or region. Diversification is often found in “pockets” or “clusters.” This is a reflection of a supportive local social context and political climate, the presence of appropriate human and natural resources, and the effect of mutual learning, modelling, and mentoring. Once appropriate links have been created with various players, including supportive government officials, further diversification and value added production can be undertaken more readily. Success builds confidence, connections, and organizational resources that can be applied to other opportunities that become more obvious once one has initiated something new.

Diversification can change the image and opportunity structure of a local region, making it more attractive to a broader range of people. Diversification attracts attention from residents, potential new residents, governments, visitors, customers, and investors. This includes, for example, young people who might otherwise leave, new immigrants, retirees, and others potentially attracted to small towns and villages as a living environment. Diversification can also strengthen linkages with other communities in the region as it creates new patterns of commuting, provides new vocations for settlements that had little obvious future, and new opportunities for collaboration. Reorganization, restructuring, and innovative resource sharing become much more palatable and positive prospects when the local economy is not perceived as a zero-sum game or as a shrinking pie.

A notable finding from our case studies was that a number of agriculturally-based diversification projects involve joint ventures or collaboration between Aboriginal and other rural communities and entrepreneurs. It is noteworthy that successful rural development and diversification in this area will require a new spirit of co-operation between reservation communities and other settlements. Diversification, in some of the cases we documented, has involved progress on race and ethnic relations, as well as progressive orientations towards working relations within household and enterprise. Diversification and value-added can become an arena for inter-community ventures that bridge historical divides. This is a social dividend and can only augur well for the future of all concerned.

Diversification and value-adding activities can help to counter the fatal (for rural development) equation that has undermined the sustainability of farm and associated rural communities. The dominant formula has placed competition ahead of co-operation and has equated progress, efficiency, productivity and competitiveness with reducing the labour associated with farming and rural working landscapes generally. Typically this formula has involved several closely related steps: increasing the size of the enterprise; specializing; and replacing labour with machinery, specialized buildings and equipment, and agrochemicals. This formula pursues economies of scale but neglects economies of scope (those savings in costs and resources that arise from a synergistic mix of activities). This has been a winning strategy for a small number of successful farmers. As an unavoidable aspect of the same logic, however, it has created many more losers than winners and has lead to depopulation, dependency, and stagnation in rural economies. In addition to problems of social and economic sustainability, this formula has lead to serious problems of ecological sustainablility. It focuses narrowly on labour productivity rather than overall resource productivity, concentrates livestock in a few locations, separates animals from cropland, and relies heavily on agro-industrial inputs imported from elsewhere. While diversification does not automatically address all of these issues, and is itself by no means easy or assured, many of the cases we have seen here illustrate how, with appropriate technical, social, and organizational arrangements, diversification can be a central component of viable, sustainable, and sustaining rural development.

4.3 PATHWAYS TO DIVERSIFICATION

While diversification projects come in various sizes and forms, it is also clear that they come about for a wide variety of reasons. Such projects are responses to many different kinds of opportunities and challenges. While some farmers have looked to diversification as a strategy to deal with financial stress or crisis, others are building on a long history of diversification to increase their income. Some farmers who are now quite diversified were once leaders in specialization. When we look at diversification cases it is evident that there is typically a mix of social and economic agendas that are being addressed. We can learn more about how to encourage successful diversification by considering the diverse routes by which farmers and other rural entrepreneurs come to implement their own strategies for enterprise development.

The following list provides a summary of some of the enterprise histories that we encountered in the case studies and in other materials pertaining to community and regional economic development in rural Saskatchewan. This inventory illustrates the great range of actors involved and the many kinds of resources and motives that contribute to diversification. If there is a lesson to be drawn from this material it is that programs and policies that aim to encourage rural economic diversification should recognize the need to support many kinds of entrepreneurship. There is no one formula that fits all conditions and locations. Many successful outcomes are the result of unexpected combinations of talents, experiences, and stimuli.

Pathways:

- Successful farmer adds diversification project, next step in on-going enterprise diversification strategy initiated by previous generations.
- Successful farmer seeks to diversify portfolio/to generate better return on investment/to valorize management skills.
- Farm family needs to increase income, but has limited capital for land or intensification. Seek innovative diversification options.
- Young people return to farm with education/work experience. Seek innovative ways to save family farm/generate livelihood. Alternative to intergenerational transfer under difficult financial conditions.
- Mature individuals return to farming with business skills and capital gathered elsewhere.
- Female, adult member(s) of household seek opportunities to generate income and to reclaim position as decision maker and producer. May be woman with non-farm background. Opportunity for women and children to achieve autonomous management roles.
- Locally initiated diversification to create new employment. Public-minded community and economic development project--without promise of high returns.
- Diversification to achieve livelihood/ lifestyle/philosophical goals. Farmers seeking alternative models find technical/social support in networks. Urban linkages often important.
- Technical innovation to solve household or farm problem. Leads to manufacturing/distribution business.
- Outreach/extension/promotion activities of local/regional/ transnational firms selling inputs, services, specialty crops. Diffusion and adoption.
- Local entrepreneur/middleman develops processing facility. Provides market outlet. Recruits/educates producers. Off-farm employment opportunities created.

- Neighbours/business associates/community economic development organization initiate joint venture. Opportunity to join/invest via social network or public meeting.

- Post-secondary institution or government agency outreach workers introduce innovative organizational/technical models for diversification. Form close working association with individuals, community entrepreneurs.

5.0 Understanding Diversification as Development

5.1 What States and Local Communities Hope to Gain from Diversification

Agricultural diversification has attracted support from a wide range of governments and agencies, as well as from local development authorities and communities. It is attractive to states and community economic development actors for a range of reasons. It is a promising strategy in that it has the potential to address many of the requirements of sustainable rural economic development. As a strategy it is also broadly consistent with the contemporary ethos of restructuring, re-regulation, and government austerity. However, some of the reasons for supporting the concept may be mutually contradictory given the tradeoffs involved, and given that costs and benefits can be allocated in many ways. The strength of the attraction for civil servants and politicians may stem, in part, from the generality and ambiguity of the concept, and from the lack of explicit discussion of the processes and impacts entailed.

Senior governments want agricultural and rural diversification to:

- stabilize rural economies characterized by short booms and long busts.
- increase rural employment and incomes.
- increase tax bases for all levels of government.
- address political and social liabilities of rural depopulation and decapitalization.
- reduce the need for subsidies and increase the volume of exports.
- respond to resource management and environmental issues.
- shift responsibility for development onto communities, individuals, and private firms.
- help redefine farming as a business, and farmers as business people.

Governments see agricultural and rural diversification as a response to multiple economic, social, and political problems. Diversification of regional economies has long been one strategy for stabilizing and expanding rural economies, incomes, and employment. In as much as it involves adding value to commodities, and developing or accessing new markets, it is also a way to stabilize or increase the tax base, and reduce the need for transfer payments and subsidies. Diversification allows governments to address the problems and liabilities of rural depopulation, decapitalization, and unemployment even as they refocus responsibility for development onto local communities. Moreover, diversification is consistent with a vision of government support for 'self-help' and 'private' entrepreneurship in that it stresses the primacy of the private firm, the need for partnerships with corporations, and the business character of contemporary farming. Finally, governments see diversification as a potential vehicle for addressing agricultural resource management problems, and the environmental politics that arise around these issues.

Despite any risks or costs involved, local communities, administrators, and economic development officers also tend to see diversification as a promising strategy. It is one way to respond to fiscal pressures, and to garner assistance from senior governments—given restructuring and reorientation of programs. Diversification is one strategy for stabilizing or increasing population and tax base, as well as business activity and property values. Diversification-based development creates local employment opportunities. Of course, the employment generated through diversification may bring local communities face-to-face with certain realities of labour markets, including the pressure from businesses to maintain a low wage regime, the social and individual costs associated with low-wage industries, and campaigns for and against unionization. Communities and community organizations may see economic diversification as a way to promote social diversity: providing opportunities for marginalized and excluded groups, and for newcomers. Of course, such initiatives may also elicit a certain kinds of resistance, especially where long-standing community dynamics and power relations are challenged.

Local communities and organizations want agricultural diversification to:

- stabilize or increase population and tax base.
- stabilize and promote growth of existing businesses, and of property values.
- provide a greater variety of jobs/employment opportunities.
- garner assistance from governments given reorientation of programs.
- provide economic opportunities for newcomers and marginalized people.
- create advantageous linkages with other communities, agencies, or businesses.
- build on or reinforce traditions of local self-reliance and mutual assistance.
- build organizational capacity and augment social networks.
- increase solidarity and social capital.

Communities and local development actors have also perceived in diversification strategies an opportunity to build community and develop social capital. Diversification projects are often a venue for reinforcing traditions of local self-reliance and mutual assistance. Projects involving several individuals, organizations, or communities present opportunities for augmenting social networks and solidarity. Sharing experience and working in partnership may increase local entrepreneurial capacity, and create interesting possibilities for additional initiatives.

5.2 What Individuals and Households Hope to Gain from Diversification

While states and local communities have complex agendas with respect to agriculturally-based rural economic diversification, individuals and households may also have complex reasons for committing to such strategies. The mix of economic and social motivations for diversification have their obverse in the reasons why some individuals and households will not pursue such strategies. Reasons for not pursuing agricultural diversification are discussed further below.

Farm families pursue diversification strategies for purposes that reflect the many stresses and pressures of farming. The logic reflects the double character of family farms. On the one hand these farms are a commodity-producing enterprises immersed in market relations and concerns. On the other hand, they are also living places where lifestyle, raising children, passing on farming traditions, neighbouring, and community may assume a pivotal importance. Diversification may be employed as a strategy to increase income, reduce risks, and capture available commercial opportunities. It can be part of an aggressive strategy of expansion, with or without additional investments in land. It can also be a defensive reaction to financial crisis or to significant changes in the costs associated with participation in traditional commodity markets.

***Individuals and farm households opt for diversification to*:**

- increase and stabilize income.
- capture available commercial opportunities and economies of scope.
- reduce risks associated with specialization.

- increase cash flow without investing in additional land.
- adjust to changing transportation costs and regulatory environment.
- deal with the threat or reality of foreclosure or forced sale.
- escape regulated, mature, oligopolistic, or oligoponistic markets.
- reduce dependence on purchased inputs, increase independence and flexibility.
- respond to changes in government subsidy and regulatory programs
- secure tax benefits, grants, subsidized credit, technical and marketing assistance.
- implement ecological/sustainable farming systems.
- valorize skills, experience, training, and education.
- avoid working away from the farm and/or the local community.
- provide livelihoods for family members, and use labour of extended family.
- allow household members to direct their own enterprise.
- facilitate successful intergenerational transfer.
- provide full-time, year-round employment for key hired personnel.
- earn community and professional recognition as successful innovators.
- develop and reinforce social networks.
- gain the opportunity to build something, individually or collectively.
- stabilize local community by creating new economic activity.

For some farmers, diversification may be motivated by a desire for greater independence and flexibility, reduced reliance on purchased inputs, or escape from regulated, oligopolistic, or saturated markets. Diversification may also be motivated and encouraged by the availability of certain kinds of tax benefits, grants, subsidized credit, or technical and marketing assistance. In other words, farmers may be responding to opportunities instituted by governments to promote diversification, or in support of other political/administrative or economic development agendas. Farmers may also adopt a more diversified production plan when they implement certain aspects of sustainable or ecological farming systems. Examples of this kind include the rotations and new crops adopted by producers opting for organic systems of production.

There are a large number of individual, household, and community related social factors that also come into play as reasons for diversification, or as conditions that facilitate success with particular approaches to diversification. Diversification may be a stratagem for deriving economic value from the skills, training, and education that family members have accumulated working off-farm, taking special courses, or from study in university programs. Diversifying the farm operation by entering certain kinds of high value and management intensive crop or livestock operations, or by establish a farm-based business not only valorizes and further develops these capacities, but allows individuals to avoid working away from the farm or the local community. This is important for personal social and economic reasons, but it is also significant for the future of the local community and region inasmuch as skilled and entrepreneurial people can thereby access remunerative employment without leaving the area.

The social and familial logic of diversification also comes to the fore in that it may be a deliberate scheme for creating opportunities for additional family members (a daughter or a son-in law, for example). It can also be a way for entrepreneurial individuals to profitably employ "surplus" family labour available at certain stages of household development, or through extended kinship networks. Diversification often figures as a key component of an intergenerational integration and transfer strategy. Its economic importance derives from the increased cash flow that can be generated. Its social significance also derives from the opportunity it can provide for members of the household to have greater autonomy in directing their own subsidiary enterprise or farm-based business. Diversification can thus be a household strategy invoked to provide greater opportunity and independence for grown children or for spouses, i.e. for women living and working as farmers.

The availability of management and labour are both key factors in diversification decisions. Beyond family labour and management, diversification may also be related to concerns about hired labour. While the potential problems associated with relying on hired labour for a diversified agriculture are discussed below, it is important to acknowledge the inauguration of diversified activities may be undertaken out of concern for creating adequate employment opportunities for hired workers. This could include efforts to provide employment for a neighbour or community member. More often, however, it is a strategy to provide full-time, year-round employment for key hired personnel. Diversification into fabrication, processing, transportation, or livestock, for example, may allow a farmer to retain and make economical use of a full-time employee. The employee gains from the arrangement via increased stability, security, and income.

Diversification can have social and psychological dividends for farm operators. Managers of a successful diversified farm operation or off-farm business earn community and professional recognition as innovative and skilled entrepreneurs. Certain kinds of business and community networks are reinforced as an enterprise is developed, furnishing the individuals involved with access to new resources, and increasing their capacity to effect change. Starting a small or large agriculturally-based diversification project allows people to be pioneers once again, to build something new individually and collectively, and to contribute to the stability and growth of rural communities. These are all motivations that go well beyond narrow calculation of economic self-interest.

5.3 Why Individuals, Households, and Communities May not Diversify

The factors that limit or prevent diversification by individuals, farm households, or local and regional economies are at least as complex as those that enable or encourage a greater range of activities. These factors are often closely related to the conditions that promote diversification, but they are not necessarily easy to reverse or to rectify. Nor is this always desirable, whether from the personal, family, or local community perspective. Much economic, managerial, and development theory after all, has focused on the need to concentrate resources and energies on those things which one can do relatively well, and not to invest to heavily in long shots or risky undertakings.

***Reasons individuals and households may not diversify*:**

- too young, too old, or in ill health.
- lack of capital or credit, or carrying too much debt.
- lack of skills, confidence, or connections to produce and market alternative products.
- off-farm employment restricts time/energy available for farm enterprise.
- distance from markets and input suppliers, lack of local markets or processors.
- farm too small given economies of scale and lumpiness of technical inputs.
- sunk costs/fixed investments in specialized machinery/buildings.
- farm operating successfully as a specialized grain or livestock operation.
- family labour availability a limiting factor.
- no apparent heir, or family disinterested in farm and farming.

- family dynamics a limiting factor.
- reliance on hired labour requires cash flow and simplified management scheme.
- cannot attract or afford skilled, dedicated hired labour.
- relying on custom farming or farm management services.
- lack of specialized farm services or transportation.
- lack of security re tenure, or the character of the landlord-tenant relationship.
- lack of solidarity, cohesion, or facilitating leadership locally.
- a declining local economy inhibits private and public investment.

Individual circumstances may preclude diversification. One may be planning to exit farming for reasons of age or ill health. One may be lack the capital or credit necessary to finance additional new activities, especially if one is already labouring under a heavy debt load. One may lack the skills, experience, and connections necessary to successfully produce and market new products. One may be committed, for perfectly rational reasons, to livelihood strategies that preclude greater diversification of the farm enterprise: for example, a career or full-time employment off the farm.

The situation and circumstances of the farm itself may constitute a barrier to many kinds of diversification. The farm may be distant from markets and suppliers, and there may be no local market or handler/processor for many kinds of agricultural commodities. The farm may be too small to support additional activities at a commercially viable scale, or more people. One may have invested heavily in specialized machinery or buildings. These represent sunk costs or fixed costs that must be taken into account when considering options for developing the enterprise. Until these investments have been amortized, the most reasonable option may be to continue with the present enterprise mix. Success may also inhibit diversification. Perhaps the farm is operating quite successfully as a specialized crop or livestock enterprise. Expansion using the current mix and approach may prove to be the surest and most lucrative option for increasing income.

As with factors enhancing the prospects for diversification, family and labour issues figure prominently among the social and economic factors that may restrict diversification. Whether because of off-farm employment, age, health, or family size, the availability of family labour can be a limiting factor. Diversification is not supported where there is no apparent heir, or where the family is disinterested in farming or rural living. This may reflect excellent off-farm opportunities, but it may also reflect difficult family dynamics that reduce the likelihood that spouses or young people will become involved in the enterprise in any way, shape, or form.

Reliance on hired labour or custom farming services may also constitute barriers to diversification of the farm enterprise. Here again, the relationships are complex and certainly not deterministic. Heavy reliance on non-family hired farm labour may require a somewhat simplified farm management plan, and a closer eye on both cash flow and the bottom line. All of these constraints may reduce the flexibility to experiment with new commodities, processes, or activities, especially when there are start up costs and greater management complexities involved. In many cases it may not be possible to attract or pay for the kind of skilled and dedicated employees that would be required. Those who are unwilling or unable to farm on their own account, may also find it difficult to institute a regime involving a complex crop mix, specialty crops, or exotic livestock. Custom farming services do not want to fiddle with unfamiliar or management intensive crops. Nor are they likely to get involved in specialized livestock operations, beyond custom feeding of cattle or management of large hog barns. On the other hand, certain kinds of specialized farm services may be necessary to support a more diversified operation. The absence of such services locally can be a barrier to successful diversification. Examples range from specialized transport services, to veterinarians experienced in exotic livestock, to natural gas or three-phase electrical service.

The changing structure of agriculture and the operation of local real estate markets can also affect the propensity of farmers to diversify their farm operations. Some 40 percent of Saskatchewan farm land is rented or leased from private parties, or from government agencies. The pattern for arrangements between private landlords and tenants has moved towards greater cash rent as opposed to crop-share arrangements. Both these tenure arrangements tend to be short-term, at least in terms of the legal arrangements. Annual rental agreements are typical. This means that neither the tenant or the landlord are assured that the relationship will endure. Moreover, the tenant generally has little incentive to make investments in soil building, or in improvements such as irrigation, fencing, or livestock facilities. Where the landlord has little personal connection to agriculture, it may also be hard to negotiate sharing of costs on new initiatives.

Conditions in the local regional economy, and the character of local community life can also affect willingness to invest on-farm and in agro-industrial projects such as processing or equipment manufacturing facilities. Lack of solidarity, cohesion, or facilitating leadership can also inhibit collective and individual action re such developments. Moreover, where there has been a long-term decline in the local economy in terms of population, business activity, services, or real estate values, this may tend to restrict both private and public investment in diversification projects.

5.4 Some Concluding Observations

The research reported here is exploratory in a number of senses. It has been designed to uncover new issues in agricultural diversification, to combine old and new ways of examining these questions, and to attempt some innovation in the conceptualization of the problems and possibilities. It is also exploratory in that the resources available were modest in relation to the large and complex topics broached. Nevertheless, the effort has yielded a good harvest in terms of evidence, insights, and provocative questions for further study. While neither the issues, nor the contemporary context lend themselves to easy prescriptions or prognostication, several observations bear restating. These are, in some sense, a synthesis of the literature reviewed, the cases studied, and the other analytical exercises involving census data and the construction of a typology.

First, diversification requires people who are engaged, committed, creative, and both willing and able to experiment. People provide the motivation and the muscle for diversification; they also provide the meaning and the measure. Agricultural and rural diversification is something done by and for people, not merely for some abstract calculation of competitiveness or financial return on investment.

Second, diversification in rural Saskatchewan requires cultural diversity in terms of vision and approach, organizational arrangements, and investments of many kinds. The organizational innovations required include appropriate policies and institutional arrangements at the macro end of the scale, as well as appropriate ways of doing business and working together, both in the household and in other work and decisions-making contexts. There is need for arrangements that equitably share the costs and the benefits. There, is a need also for holism—in integrated and multi-faceted approach that simultaneously addresses a range of societal objectives. Projects should be evaluated in terms of potential for long-term regional economic multipliers, but also for the likelihood of a good "social multiplier" and "environmental multiplier" (Gertler, 1999).

Last, but not least, agricultural and rural diversification requires high levels of co-operation, collaboration, and partnerships with many kinds of contributors. This points to the importance of social capital and its reproduction. We are talking here about circles and networks of various kinds that function well thanks to a history of reciprocity, inclusion, and trust. Rural diversification requires communities that are communities both of interest and of place, people who care enough about each other, about their collective future, and about their neighbours, to make the kinds of investments necessary. Without mutual interest and some sense of shared possibilities, nothing durable or worth calling a legacy can be built.

Glossary of Terms and Abbreviations

ACS	Agriculture Credit Corporation of Saskatchewan
ADF	Agricultural Development Fund
AIMS	Agriculture Institute of Management of Saskatchewan Inc.
B & B	Bed and Breakfast
CSA	Community Shared Agriculture
CU	Credit Union
CWB	Canadian Wheat Board
FCC	Farm Credit Corporation
IRAP	Industrial Research Assistance Program
MBA	Master of Business Administration
NFU	National Farmer's Union
NRC	National Research Council
OCIA	Organic Crop Improvement Association
PARD	Partnership Agreement on Rural Development
PAWBD	Partnership Agreement on Water-Based Economic Development
PFRA	Prairie Farm Rehabilitation Administration.
PIMA	Prairie Implement Manufacturers Association
PMU	Pregnant Mare Union
RDC	Rural Development Corporation/Co-operative
REDA	Regional Economic Development Association
RM	Rural Municipality
SAF	Saskatchewan Agriculture and Food
SEDCO	Saskatchewan Economic Development Corporation
SIBED	Saskatchewan Irrigation-Based Economic Development Program
SPI	Saskatchewan Pork International
SRC	Saskatchewan Research Council
TISASK	Tourism Industry of Saskatchewan
U of R	University of Regina
U of S	University of Saskatchewan
WED	Department of Western Economic Diversification
WDF	Western Diversification Fund

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APPENDIX

Figure 3-1 Entropy Index for Field Crops including Specialty Crops, Saskatchewan 1911-1998
Figure 3-2 Entropy Index for Livestock, Saskatchewan 1916-1999
Figure 3-3 Average Number of Cattle and Calves, and Pigs per Farm, Saskatchewan 1951-1996
Figure 3-4 Total Number of farms in Saskatchewan, Number of Farm with Cattle and Calves, and Pigs, 1951-1996
Figure 3-5 Percentages of Farms with Cattle and Calves, and Pigs in Saskatchewan, 1951-1996
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Figure 3-6b Age of Operator and Diversification, Saskatchewan, 1986
Figure 3-6c Age of Operator and Diversification, Saskatchewan, 1981
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Figure 3-7c Gender of Operator and Diversification, Saskatchewan, 1981
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Figure 3-8c Total Farm Area and Diversification, Saskatchewan, 1981
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Figure 3-9b Rent as a Percentage of Total Area and Diversification, Saskatchewan, 1986
Figure 3-9c Rent as a Percentage of Total Area and Diversification, Saskatchewan, 1981
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Figure 3-10b Total Farm Recipients and farm Diversification, Saskatchewan, 1986
Figure 3-10c Total Farm Recipients and farm Diversification, Saskatchewan, 1981
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Figure 3-11b Total Farm Capital and Diversification, Saskatchewan, 1986
Figure 3-11c Total Farm Capital and Diversification, Saskatchewan, 1981
Figure 3-12a Debt in Relationship to Capital and Diversification, Saskatchewan, 1991
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Figure 3-13a Type of Farm Organization and Diversification, Saskatchewan, 1991
Figure 3-13b Type of Farm Organization and Diversification, Saskatchewan, 1986
Figure 3-13c Type of Farm Organization and Diversification, Saskatchewan, 1981
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Figure 3-14b Type of Farm Diversification, Saskatchewan, 1986
Figure 3-14c Type of Farm Diversification, Saskatchewan, 1981
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Figure 3-15b Off-farm Work and Diversification, Saskatchewan, 1986
Figure 3-15c Off-farm Work and Diversification, Saskatchewan, 1981
Figure 3-16a Hired Labour and Diversification, Saskatchewan, 1991
Figure 3-16b Hired Labour and Diversification, Saskatchewan, 1986
Figure 3-16c Hired Labour and Diversification, Saskatchewan, 1981
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Figure 3-17b Non-family Wages and Diversification, Saskatchewan, 1986
Figure 3-18a Total Cash Wages Diversification, Saskatchewan, 1991
Figure 3-18b Total Cash Wages and Diversification, Saskatchewan, 1986
Figure 3-18c Total Cash Wages and Diversification, Saskatchewan, 1981
Figure 3-19a Family Wages and Diversification, Saskatchewan, 1991
Figure 3-19b Family Wages and Diversification, Saskatchewan, 1986

DEVELOPMENTAL PATHWAYS
TO
DIVERSIFICATION

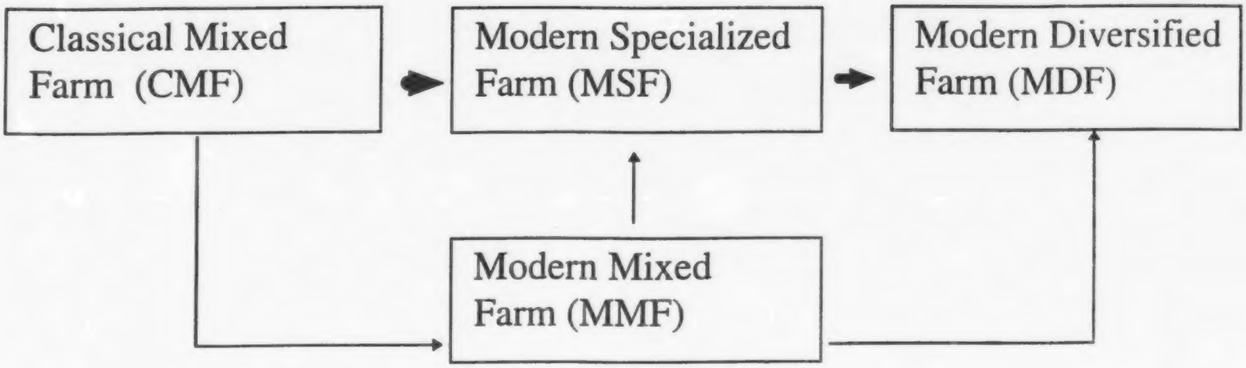

Classical Mixed Farm (CMF)
Modern Specialized Farm (MSF)
Modern Diversified Farm (MDF)
Modern Mixed Farm (MMF)

Figure 3-1
ENTROPY INDEX FOR FIELD CROPS INCLUDING SPECIALTY CROPS
SASKATCHEWAN 1911-1998

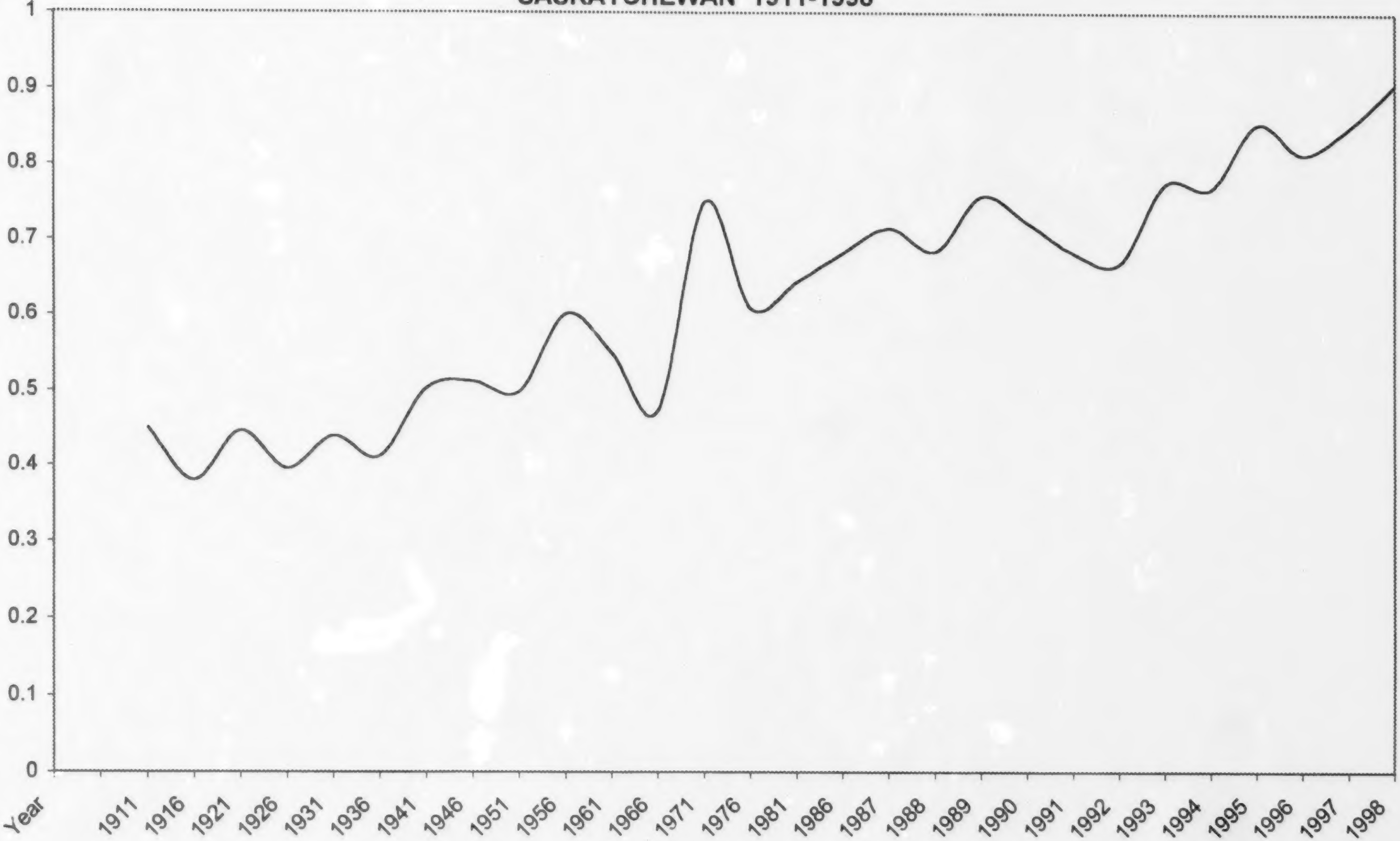


Figure 3-2
ENTROPY INDEX FOR LIVESTOCK
SASKATCHEWAN 1916-1999

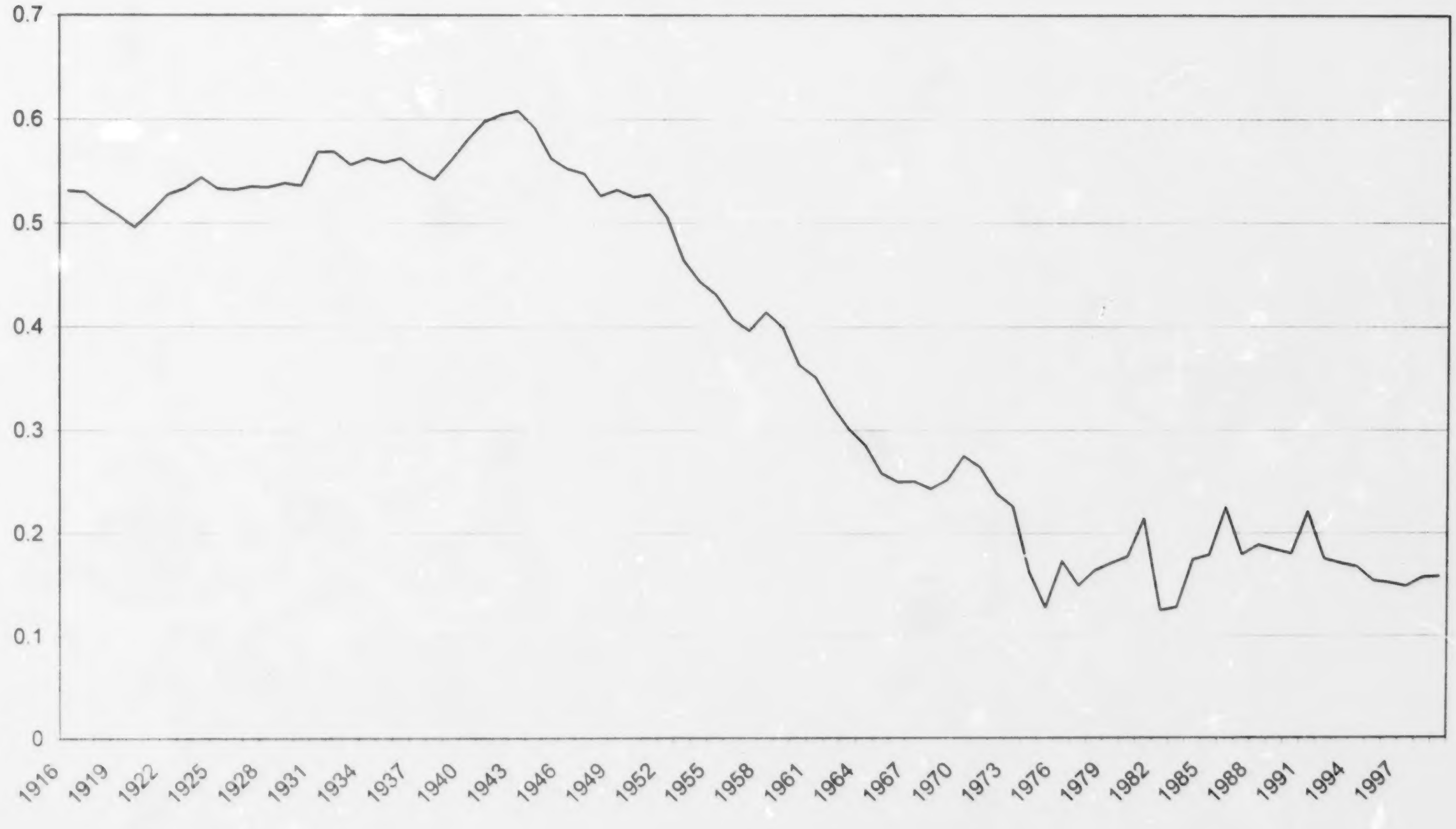
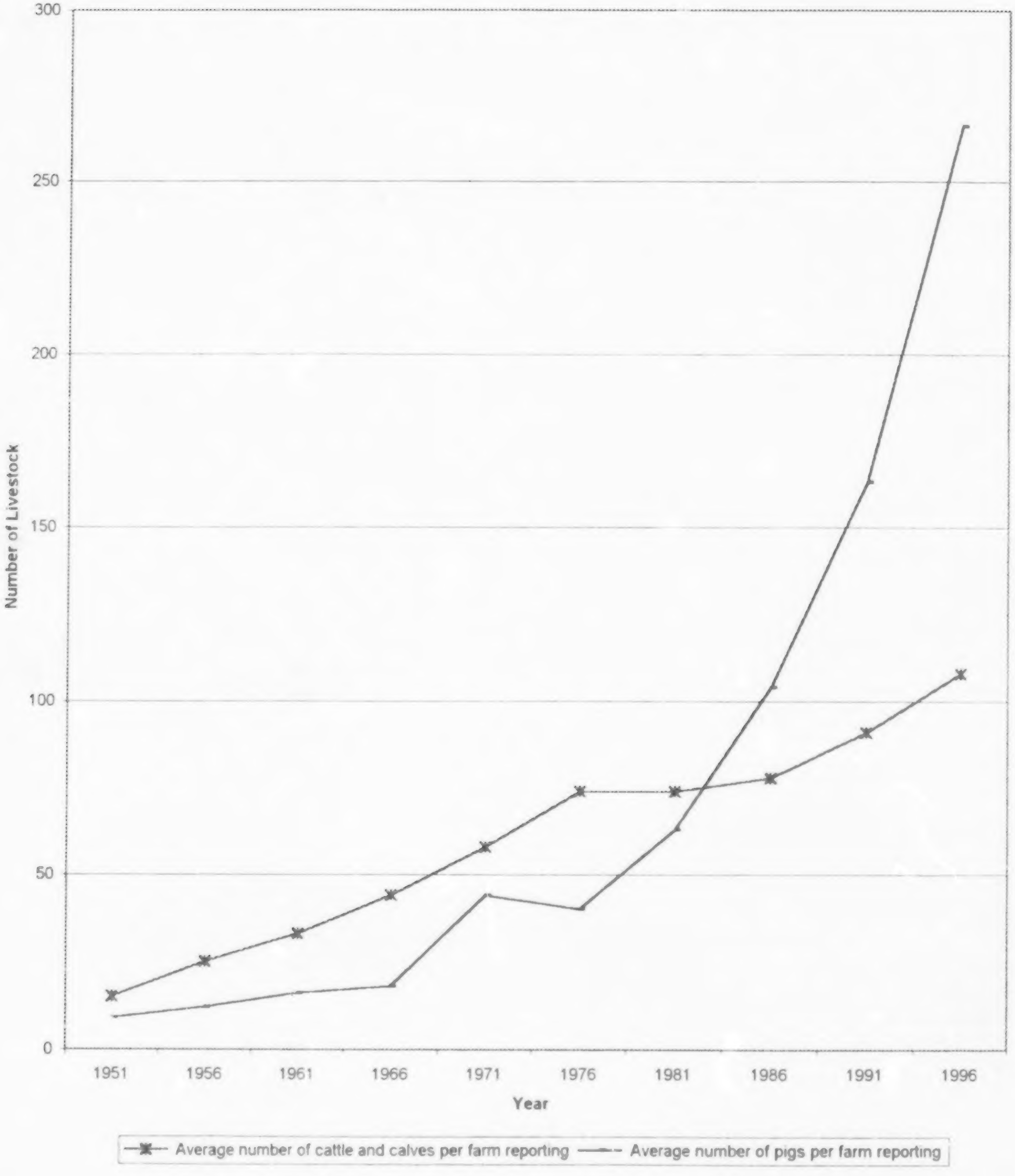
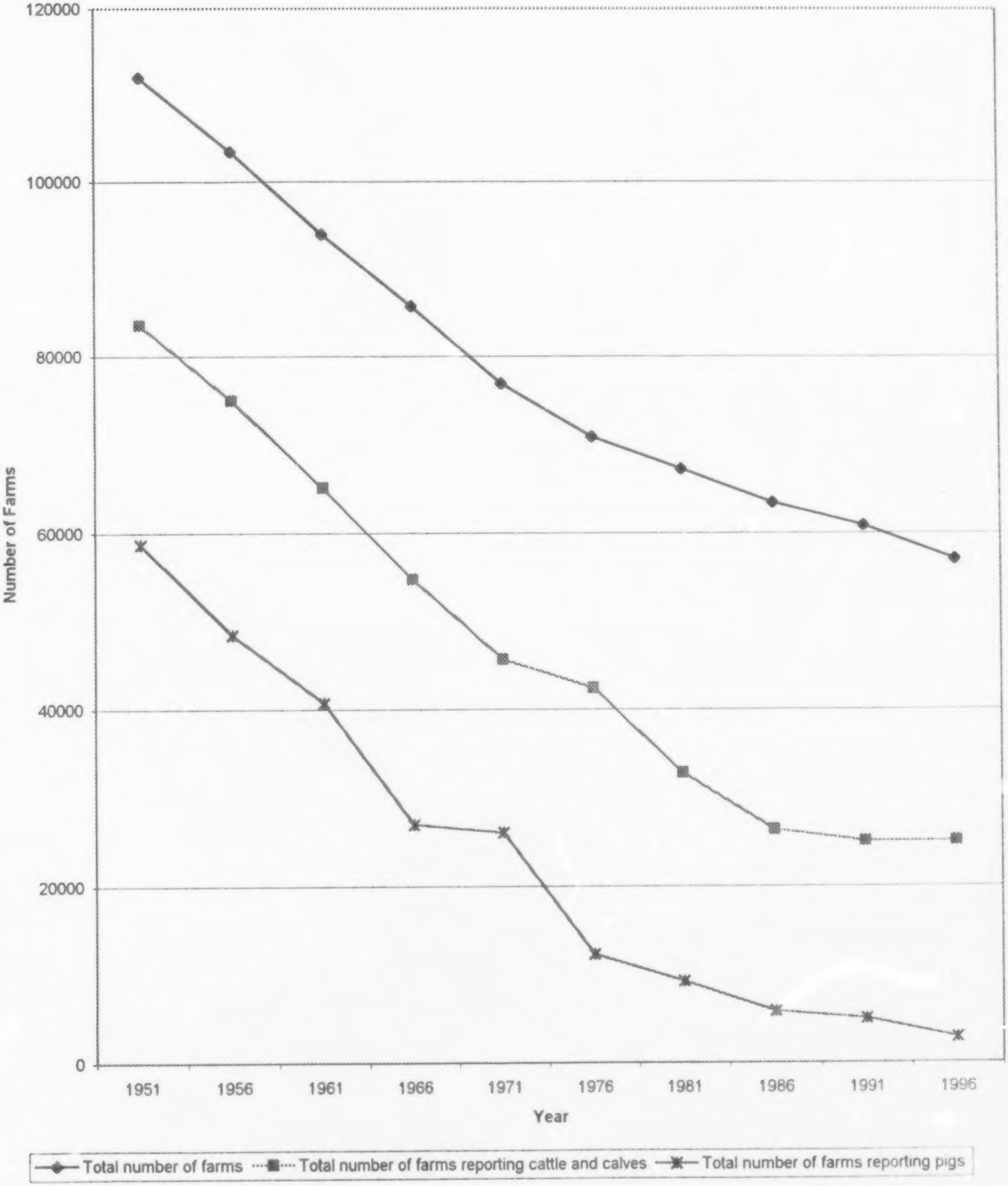


Figure 3-3
Average Number of Cattle and Calves, and Pigs Per Farm, Saskatchewan 1951-1996



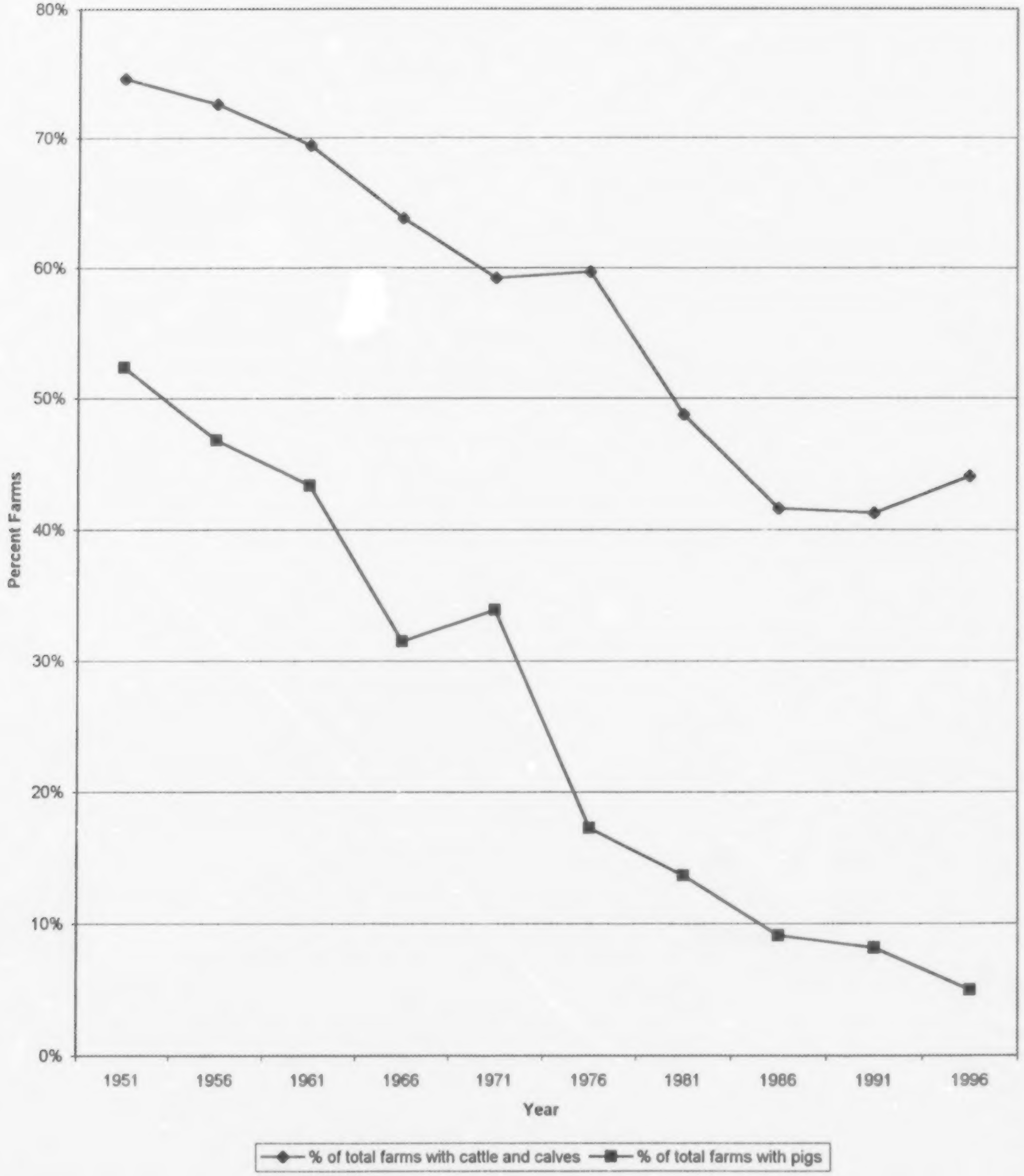
Census of Canadian Agriculture 1996: Statistics Canada, 1998

Figure 3-4
Total Number of Farms in Saskatchewan, Number of Farms with Cattle and Calves, and Pigs, 1951-1996



Source: Census of Canadian Agriculture 1996: Statistics Canada, 1998

Figure 3-5
Percentage of Farms with Cattle and Calves, and Pigs in Saskatchewan, 1951-1996



Source:Census of Canadian Agriculture 1996: Statistics Canada, 1998

Figure 3-6a
Age of Operator and Diversification
Saskatchewan, 1991

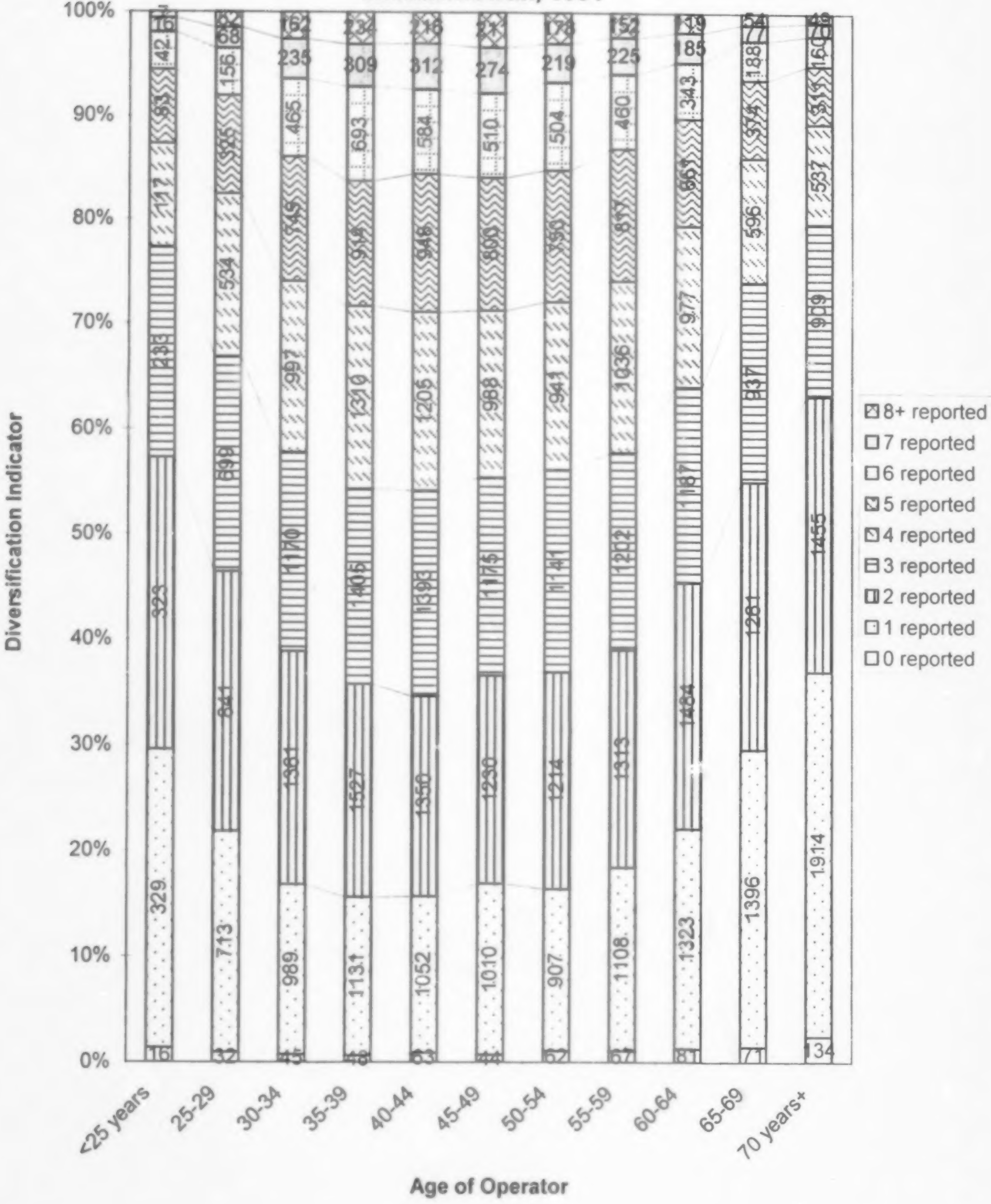


Figure 3-6b
Age of Operator and Diversification
Saskatchewan, 1986

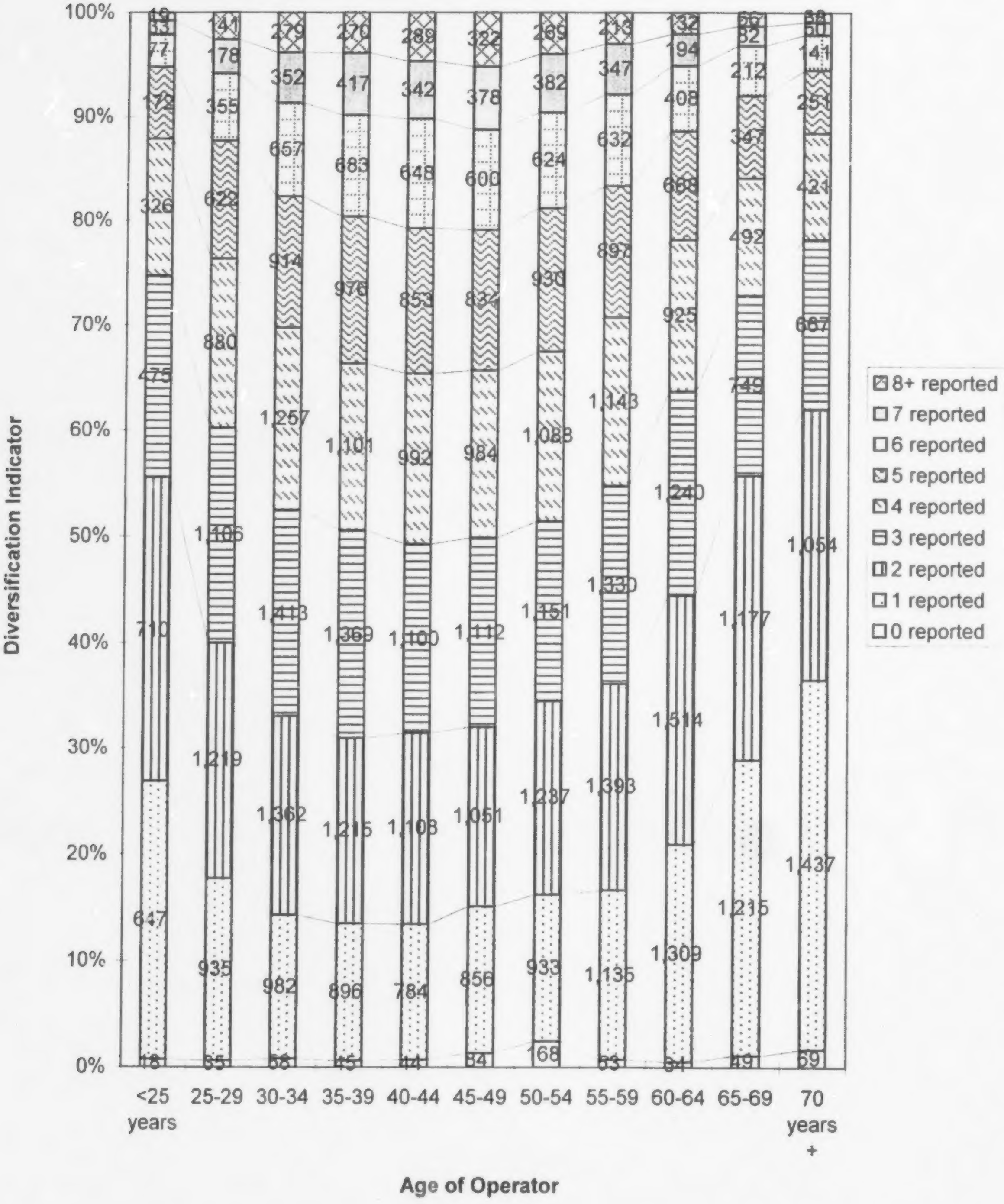
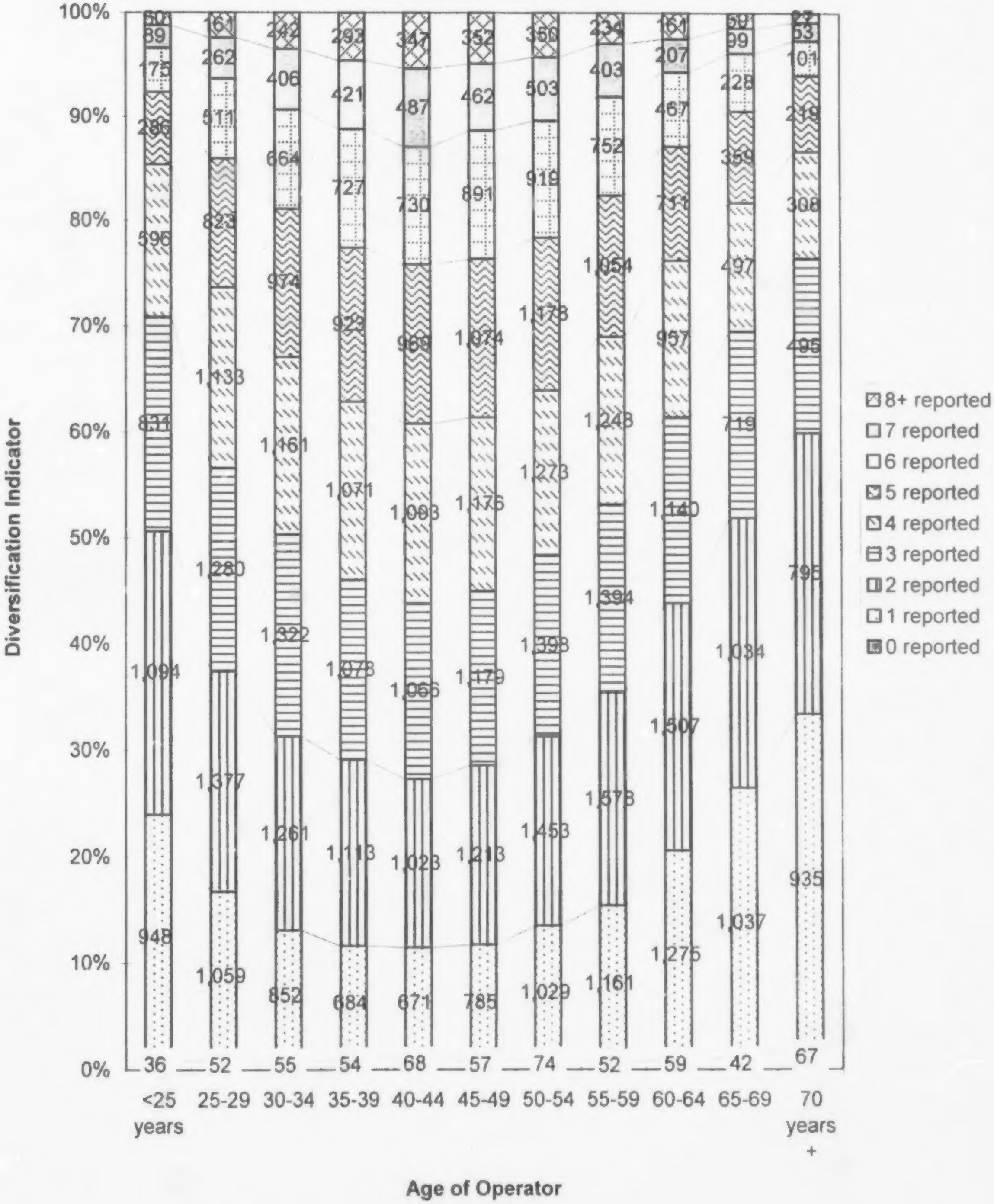


Figure 3-6c
Age of Operator and Diversification
Saskatchewan, 1981



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Gender of Operator and Diversification
Saskatchewan, 1991

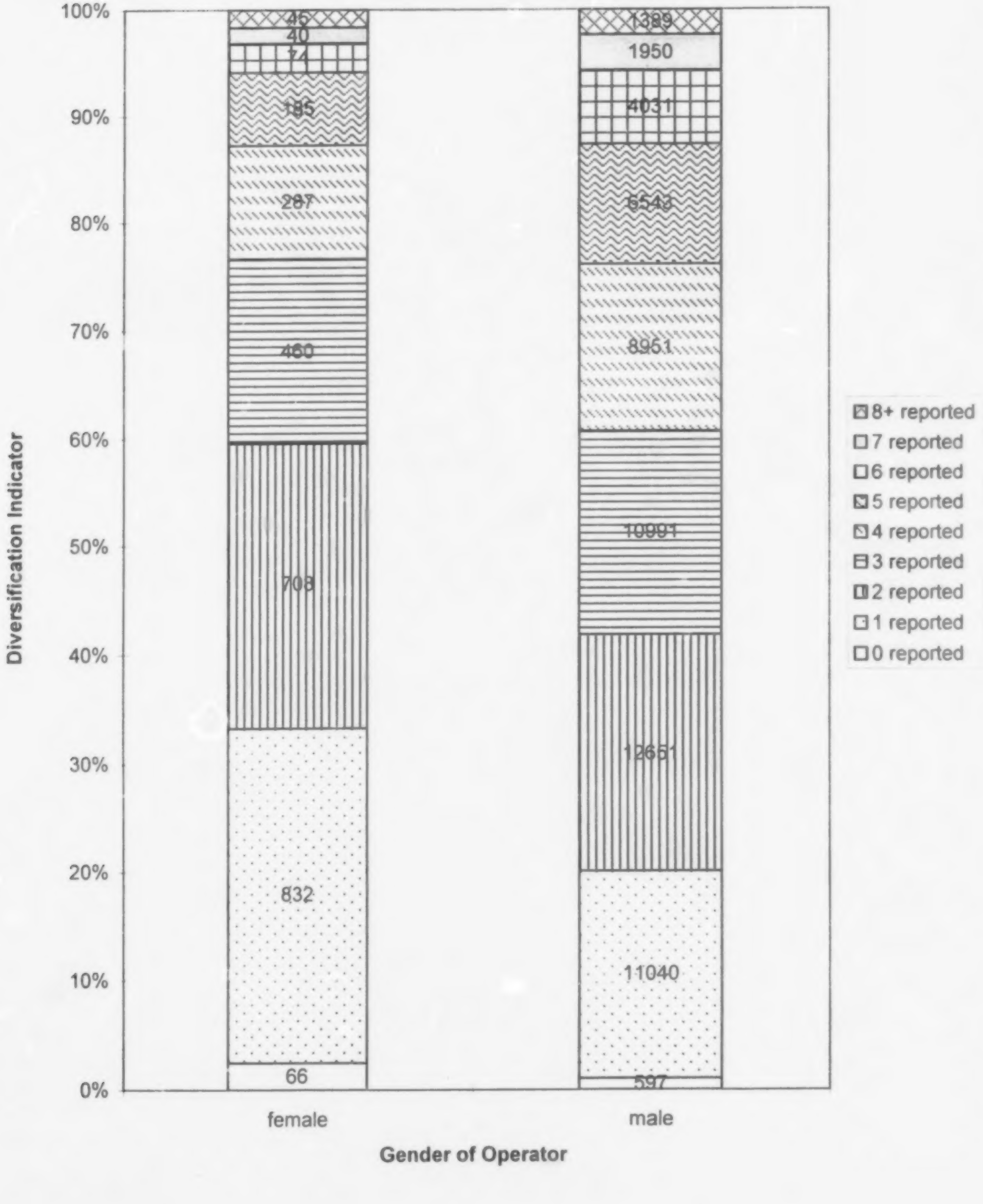


Figure 3-7b
Gender of Operator and Diversification
Saskatchewan, 1986

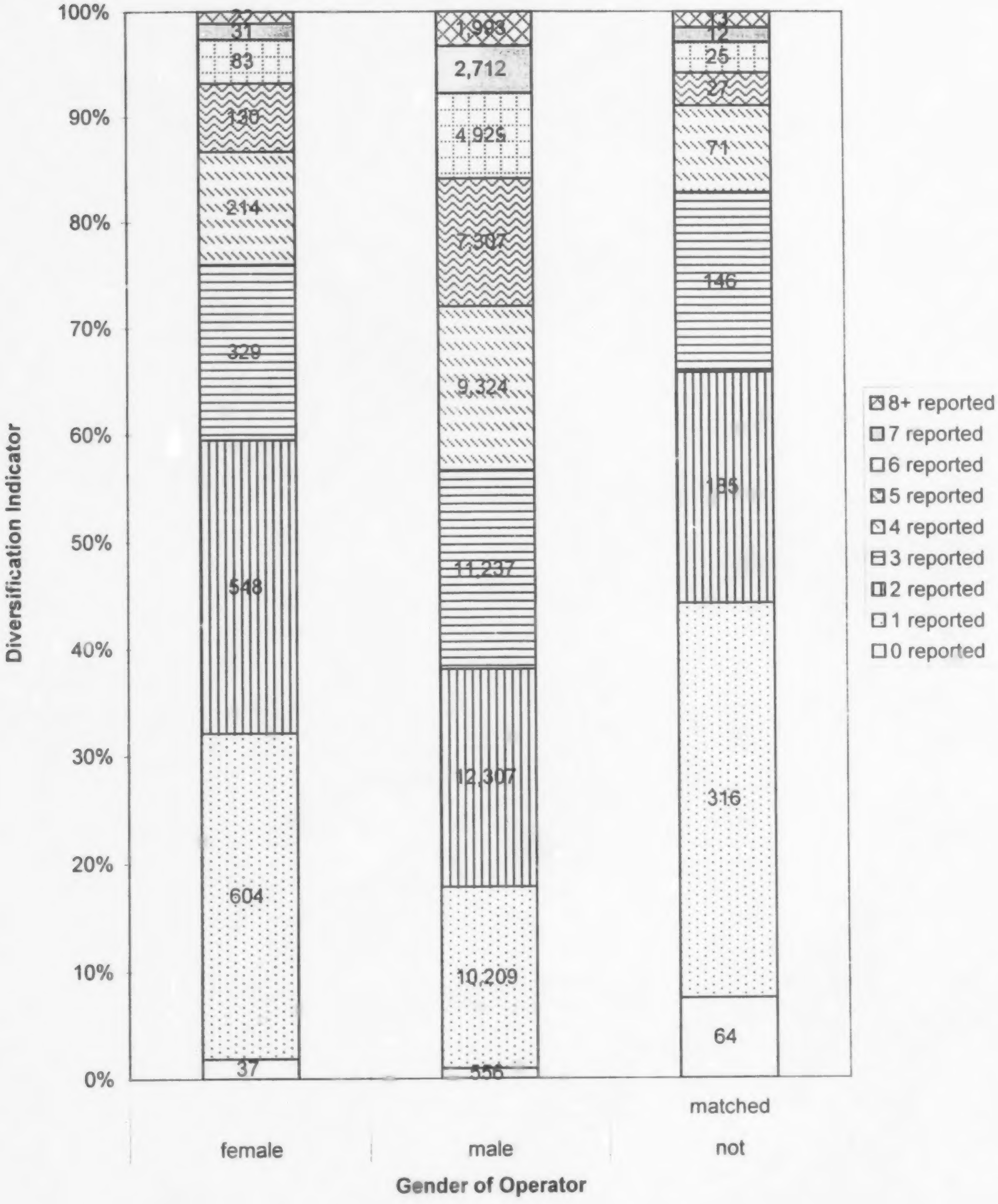


Figure 3-7c
Gender of Operator and Diversification
Saskatchewan, 1981

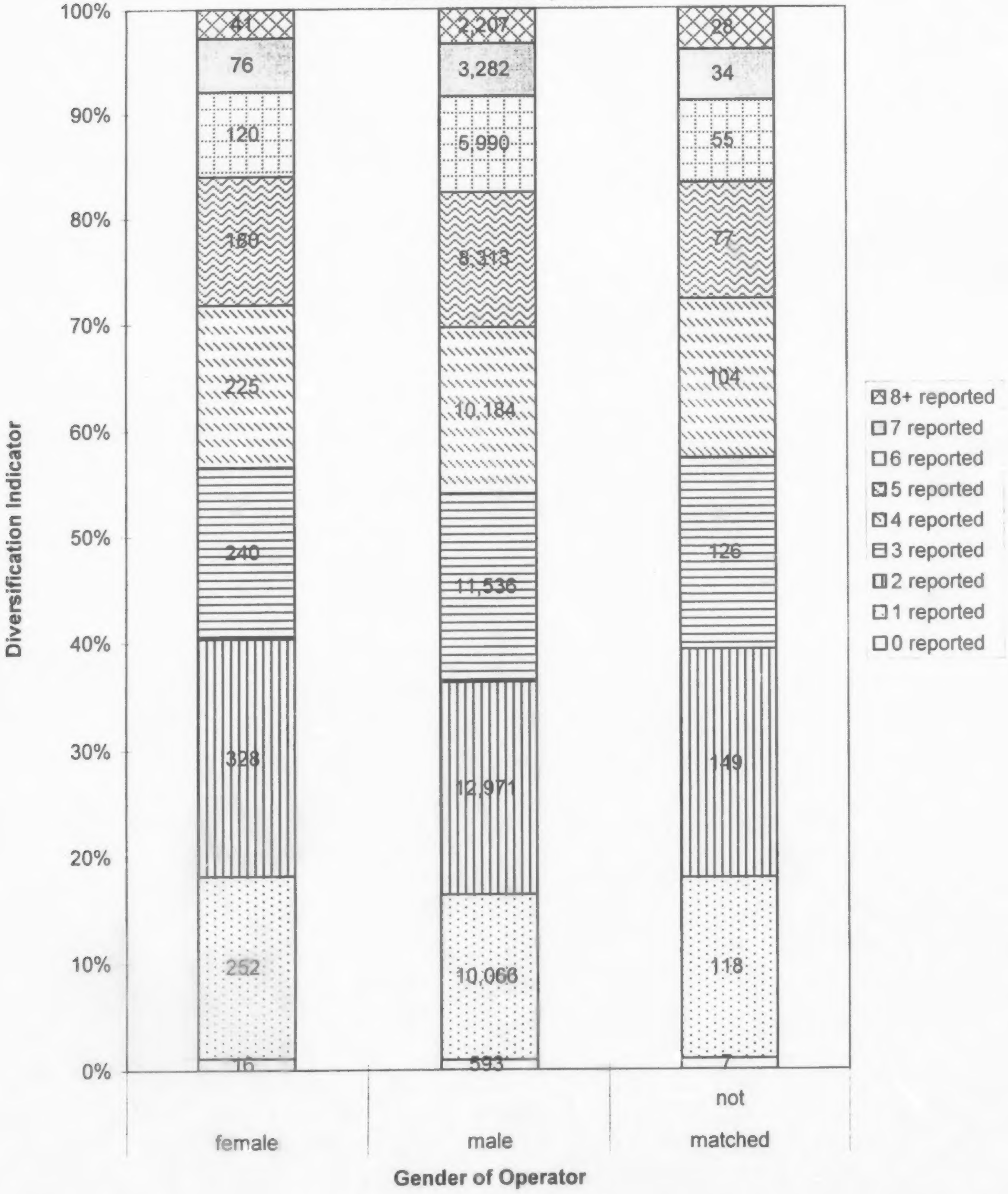


Figure 3-8a
Total Farm Area and Farm Diversification
Saskatchewan, 1991

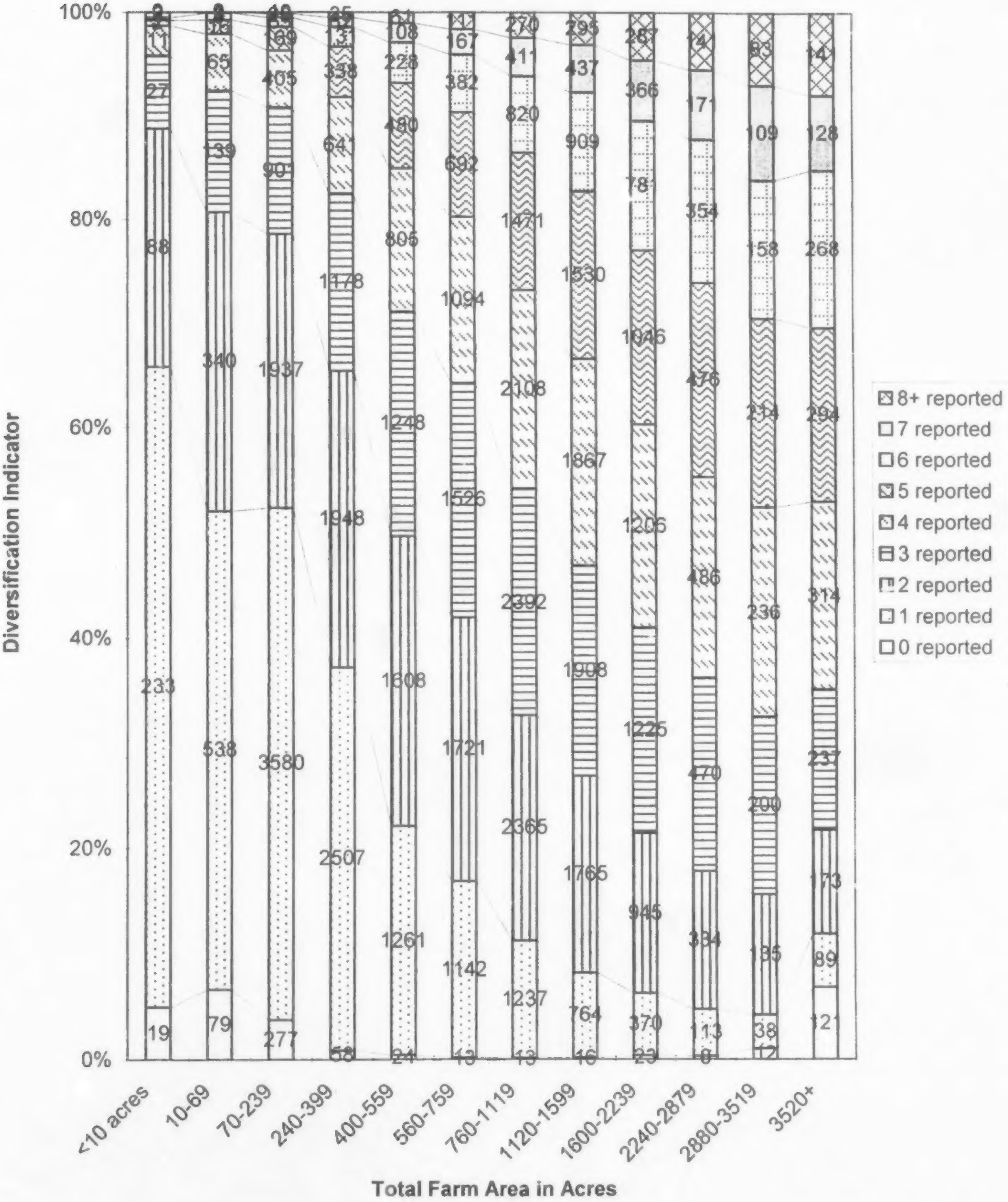


Figure 3-8b
Total Farm Area and Farm Diversification
Saskatchewan, 1986

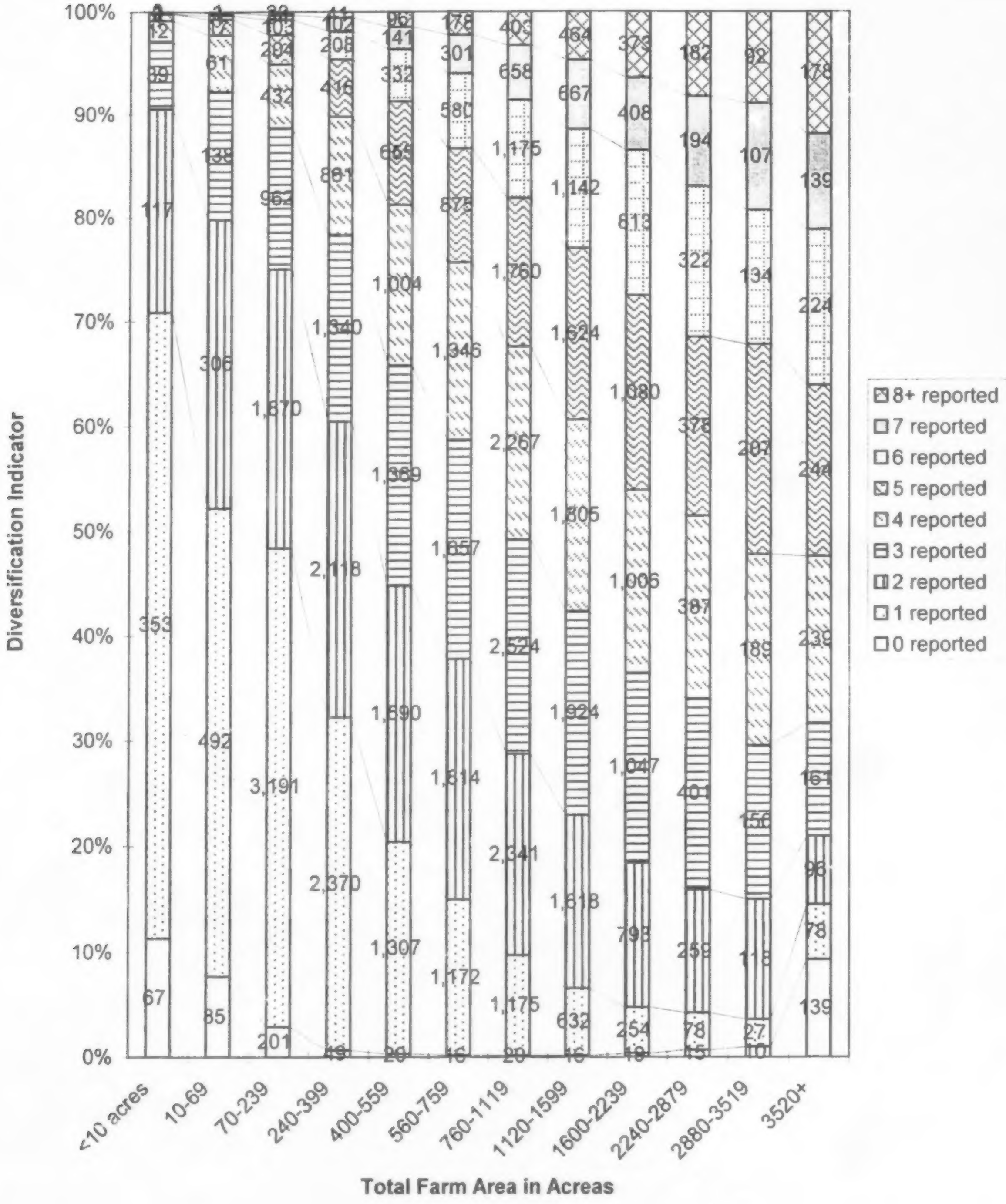


Figure 3-8c
Total Farm Area and Farm Diversification
Saskatchewan, 1981

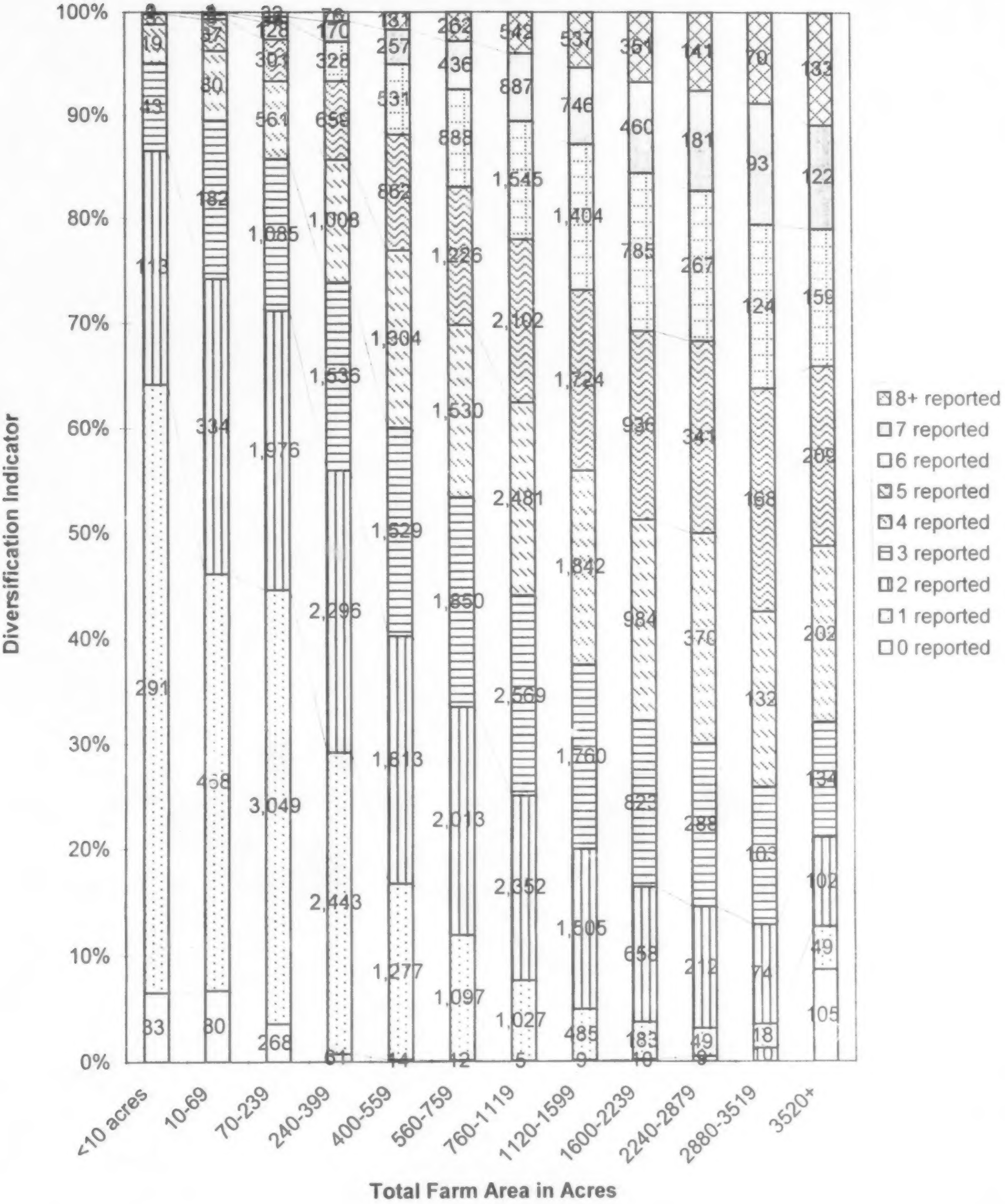


Figure 3-9a
Rent as Percentage of Total Area and Diversification
Saskatchewan, 1991

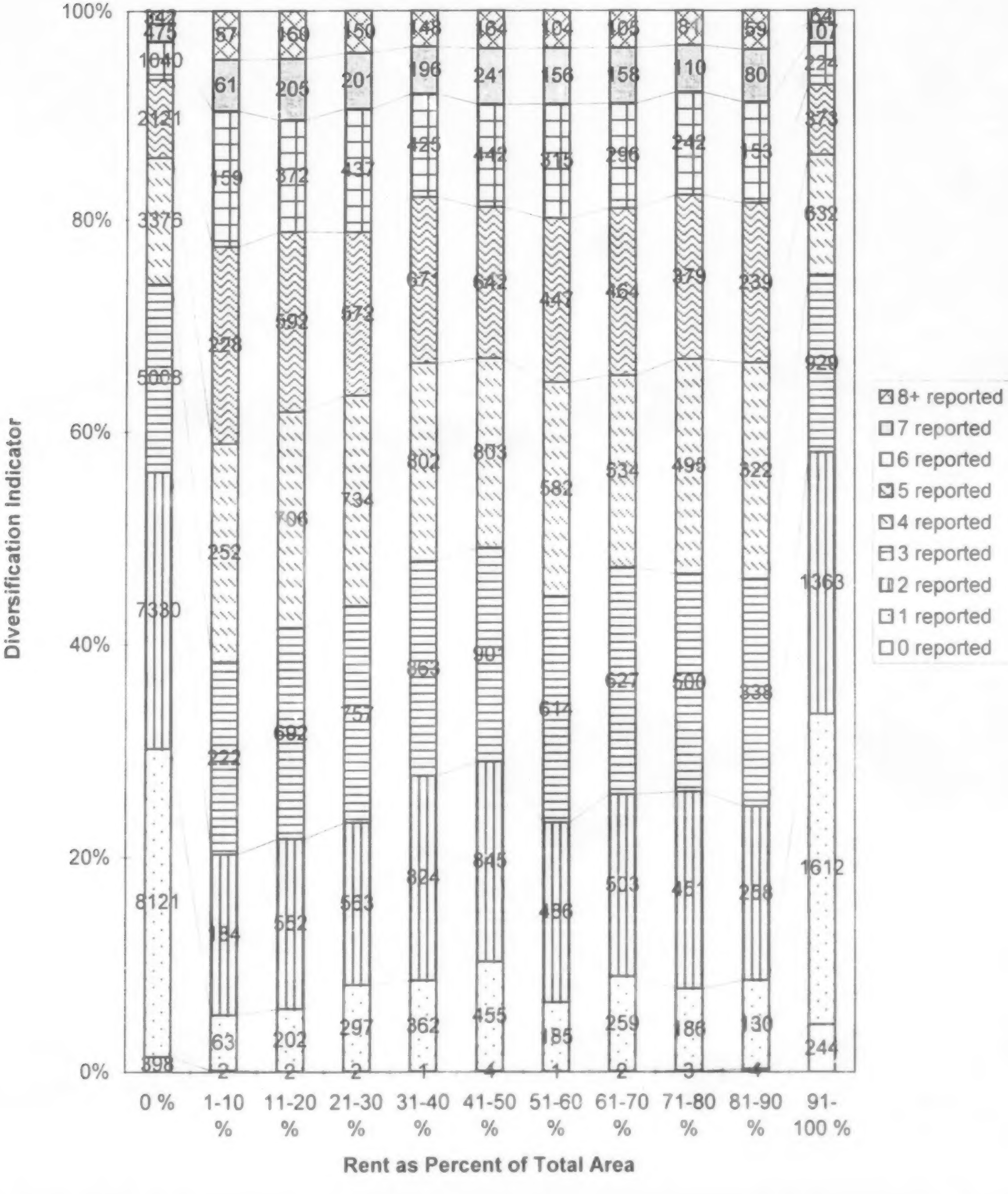


Figure 3-9b
Rent as a Percentage of Total Area and Diversification
Saskatchewan, 1986

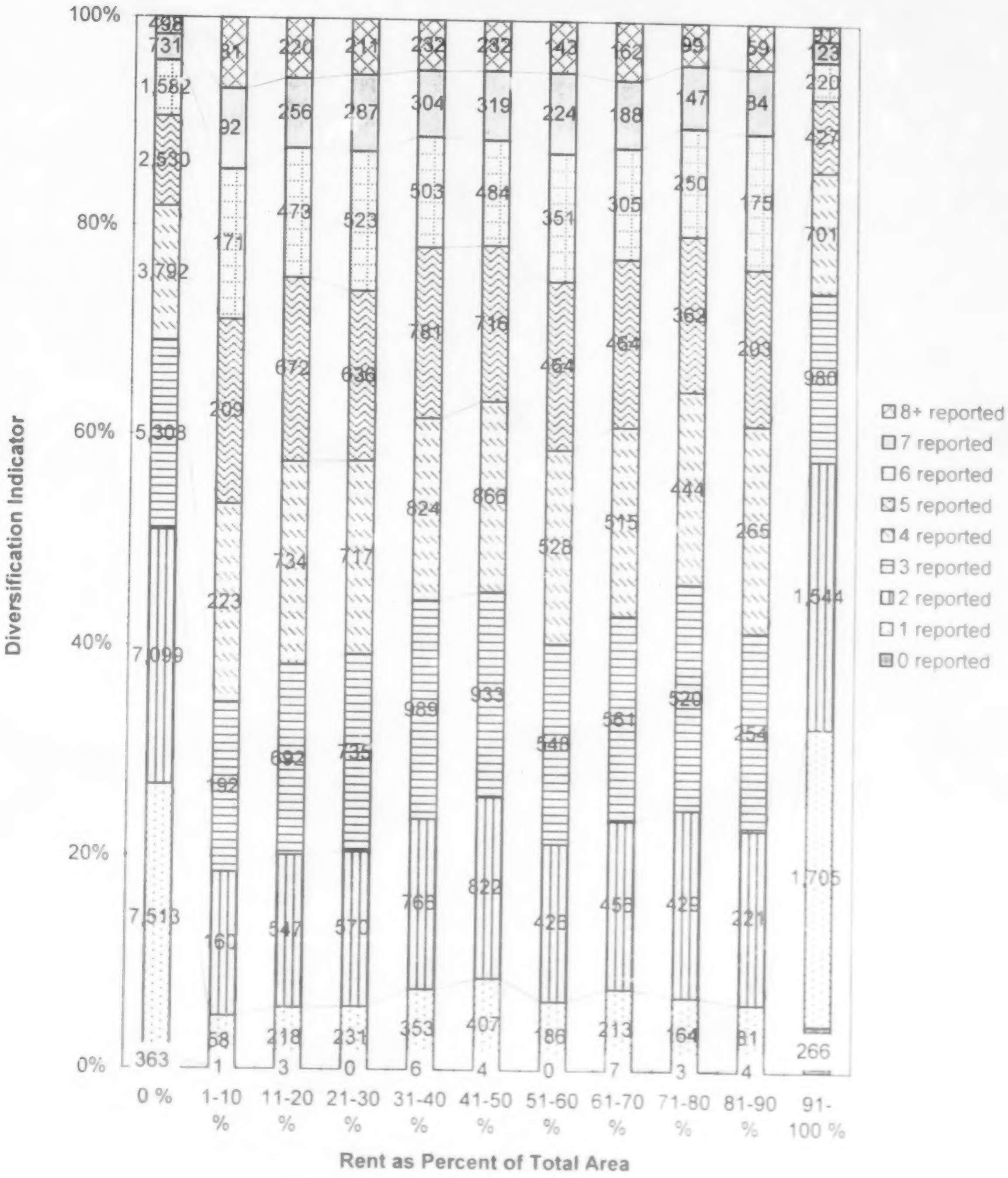


Figure 3-9c
Rent as a Percentage of Total Area and Diversificatio,
Saskatchewan, 1981

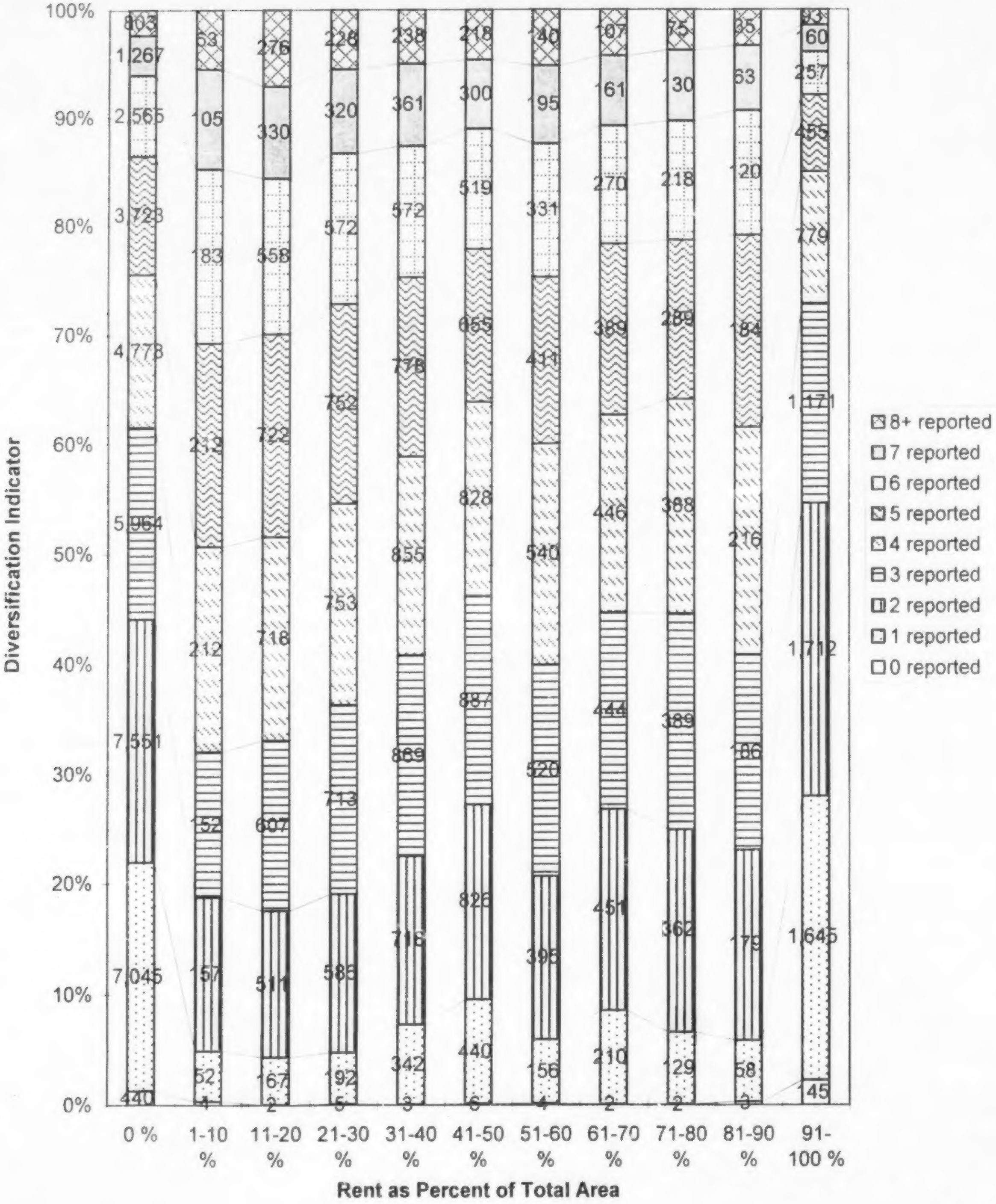


Figure 3-10a
Total Farm Receipts and Farm Diversification Saskatchewan, 1991

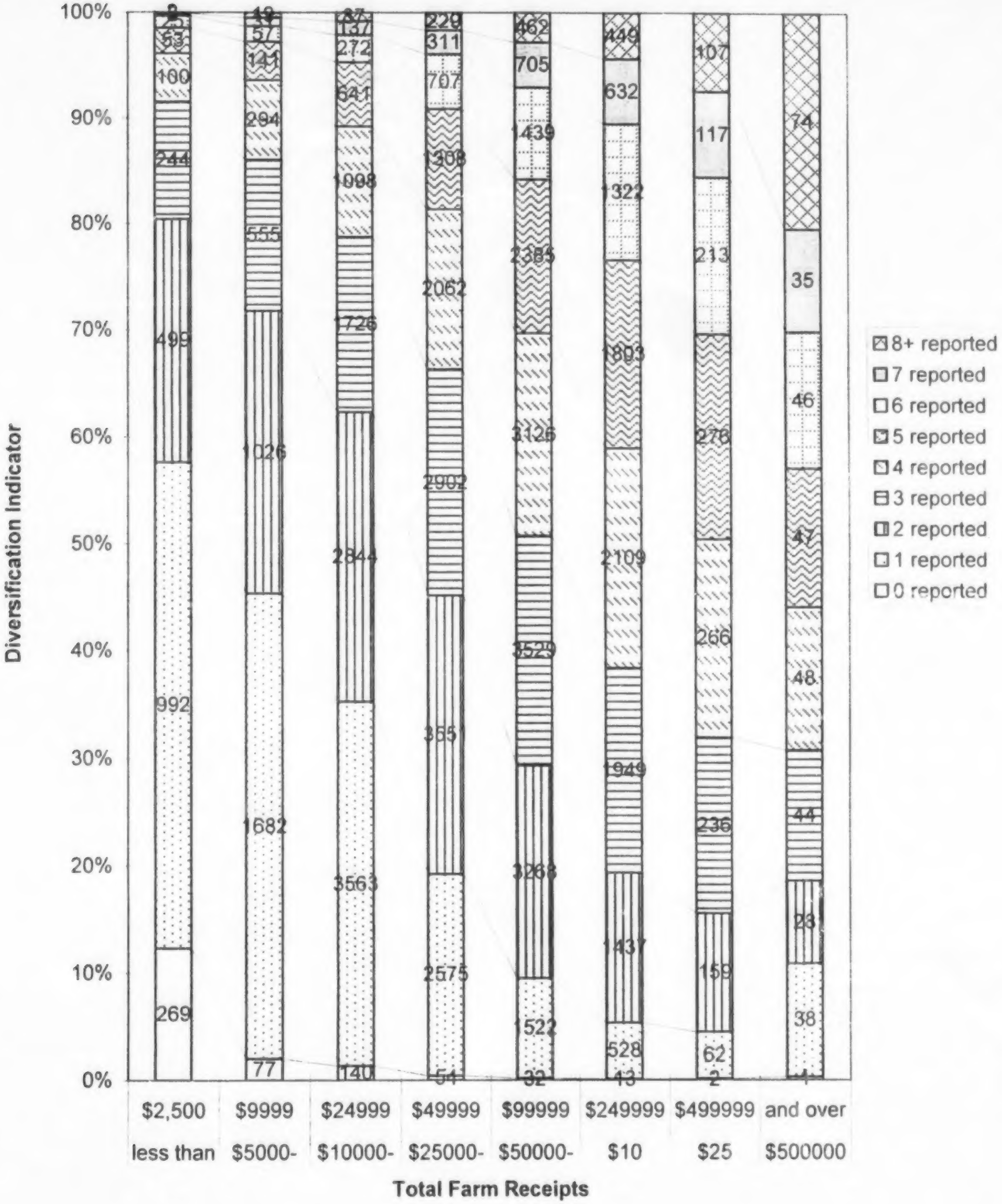


Figure 3-10b
Total Farm Receipts and Farm Diversification
Saskatchewan, 1986

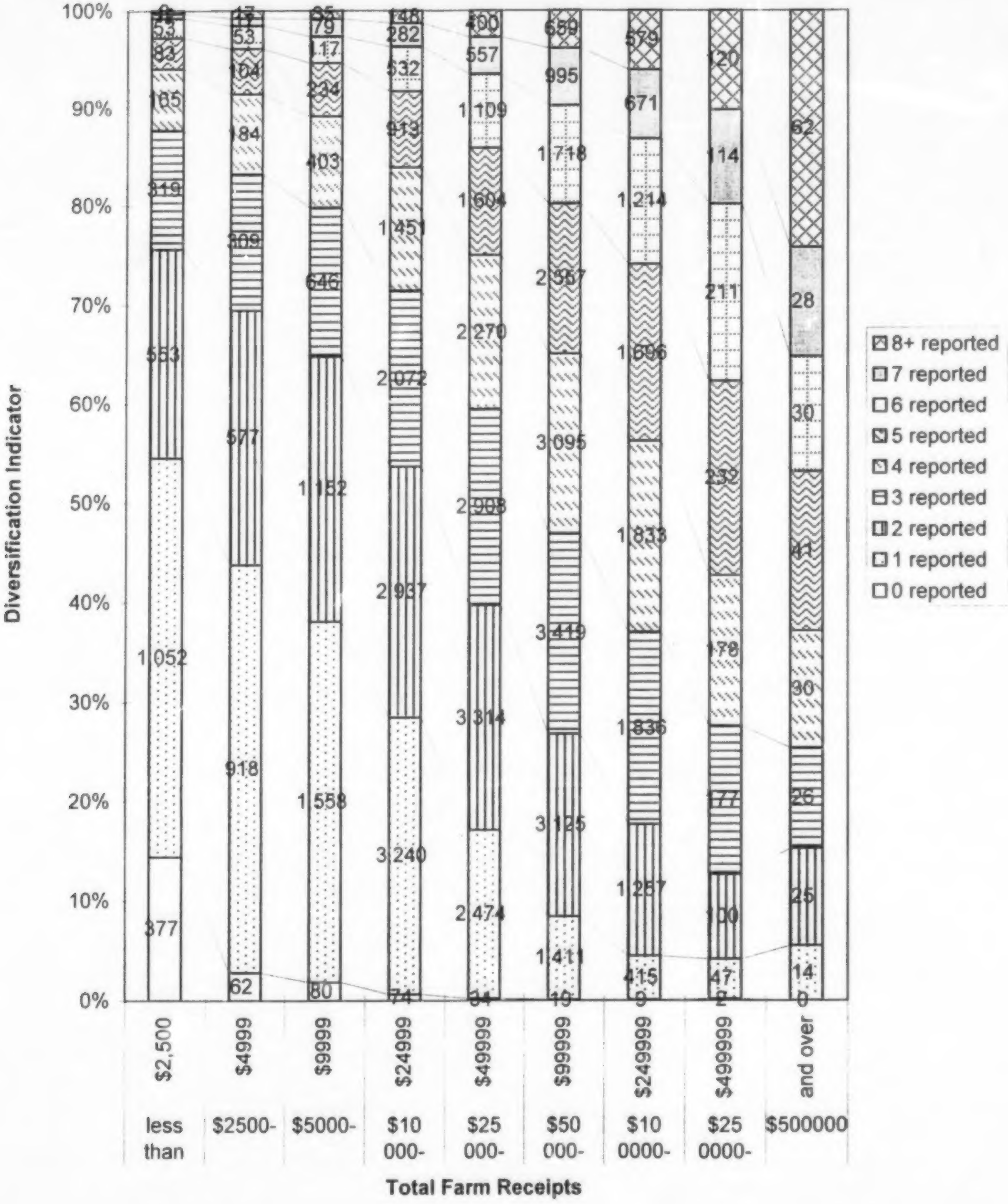


Figure 3-10c
Total Farm Receipts and Farm Diversification
Saskatchewan, 1981

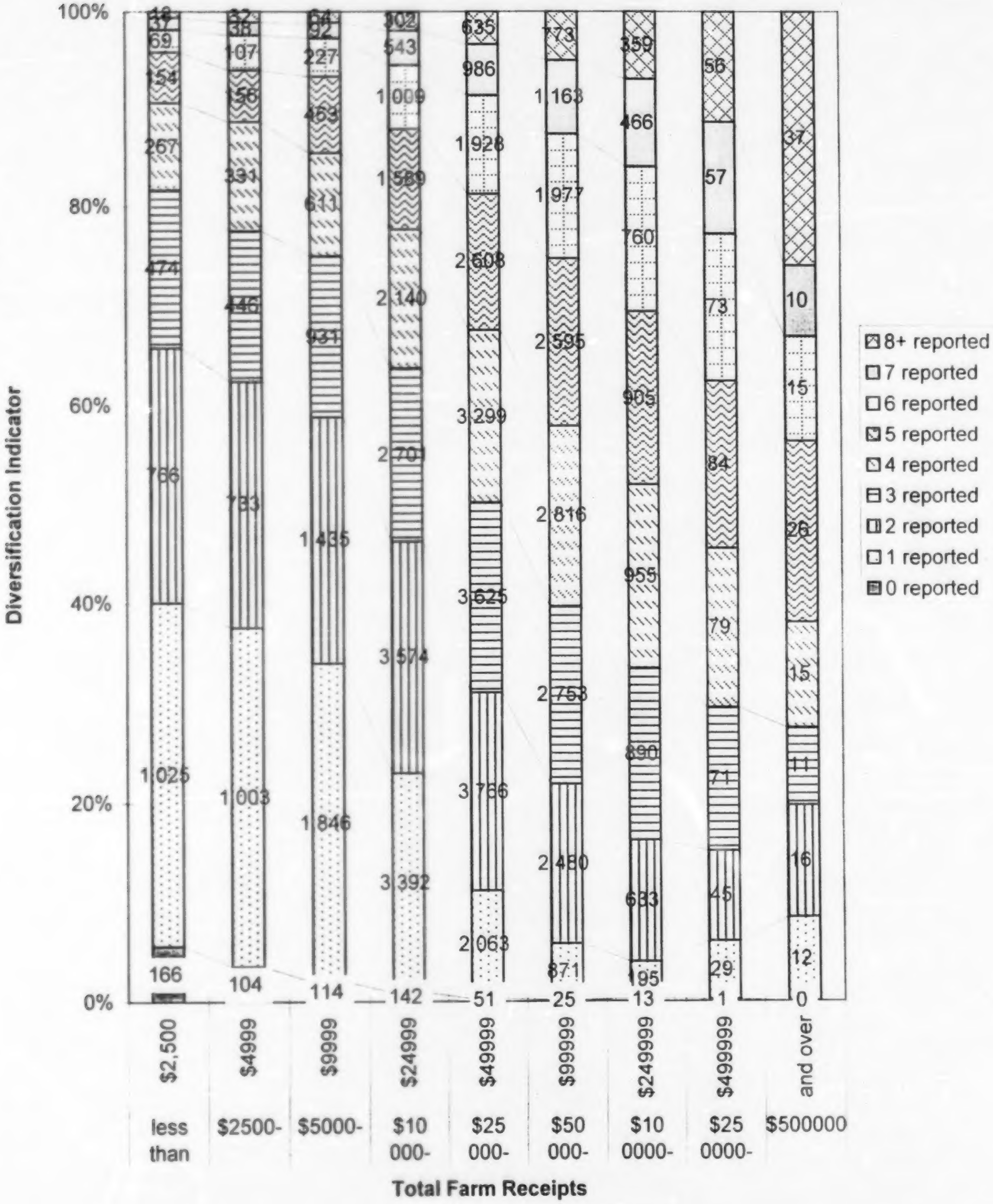


Figure 3-11a
Total Farm Capital and Diversification
Saskatchewan, 1991

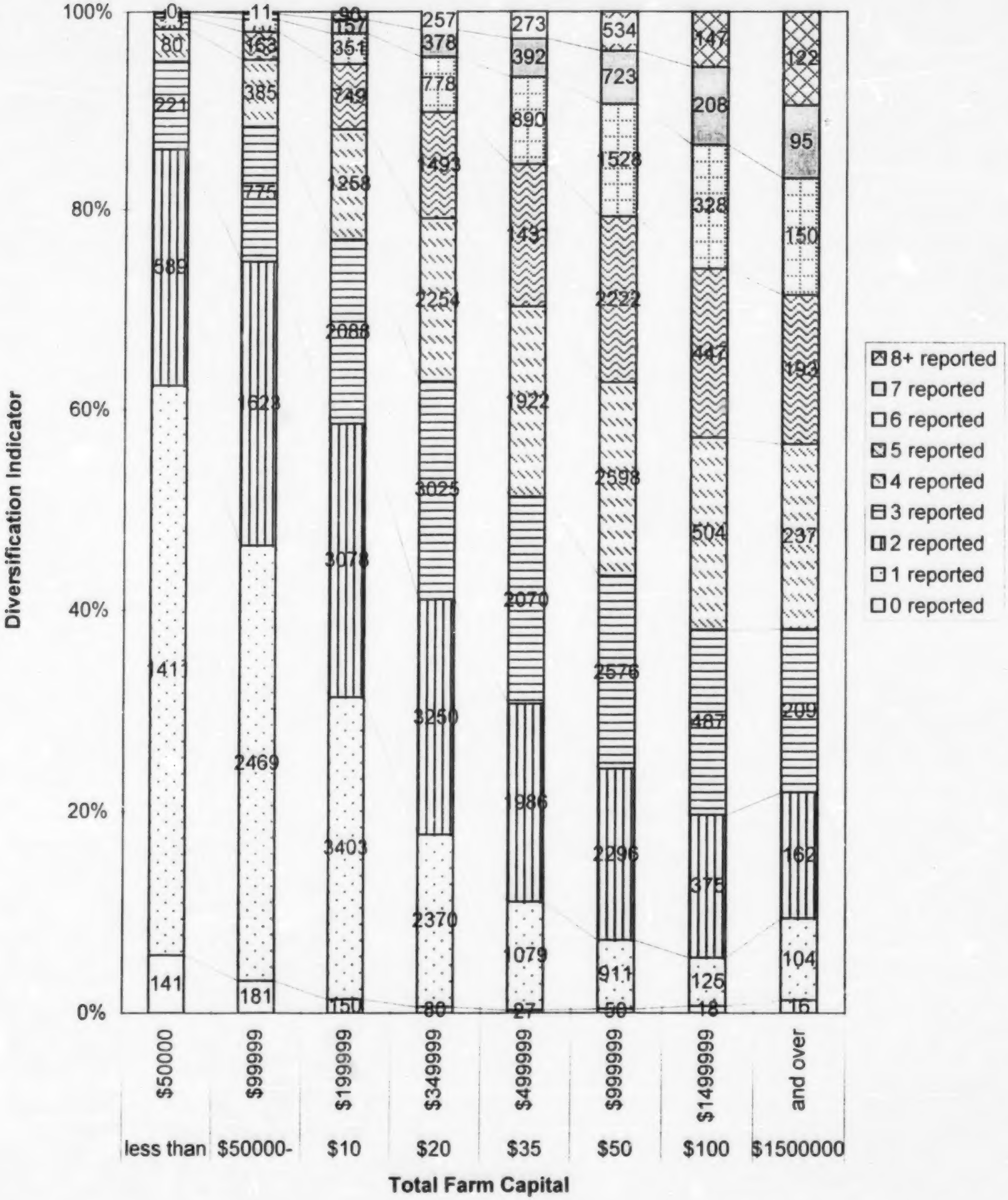


Figure 3-11b
Total Farm Capital annd Diversification
Saskatchewan, 1986

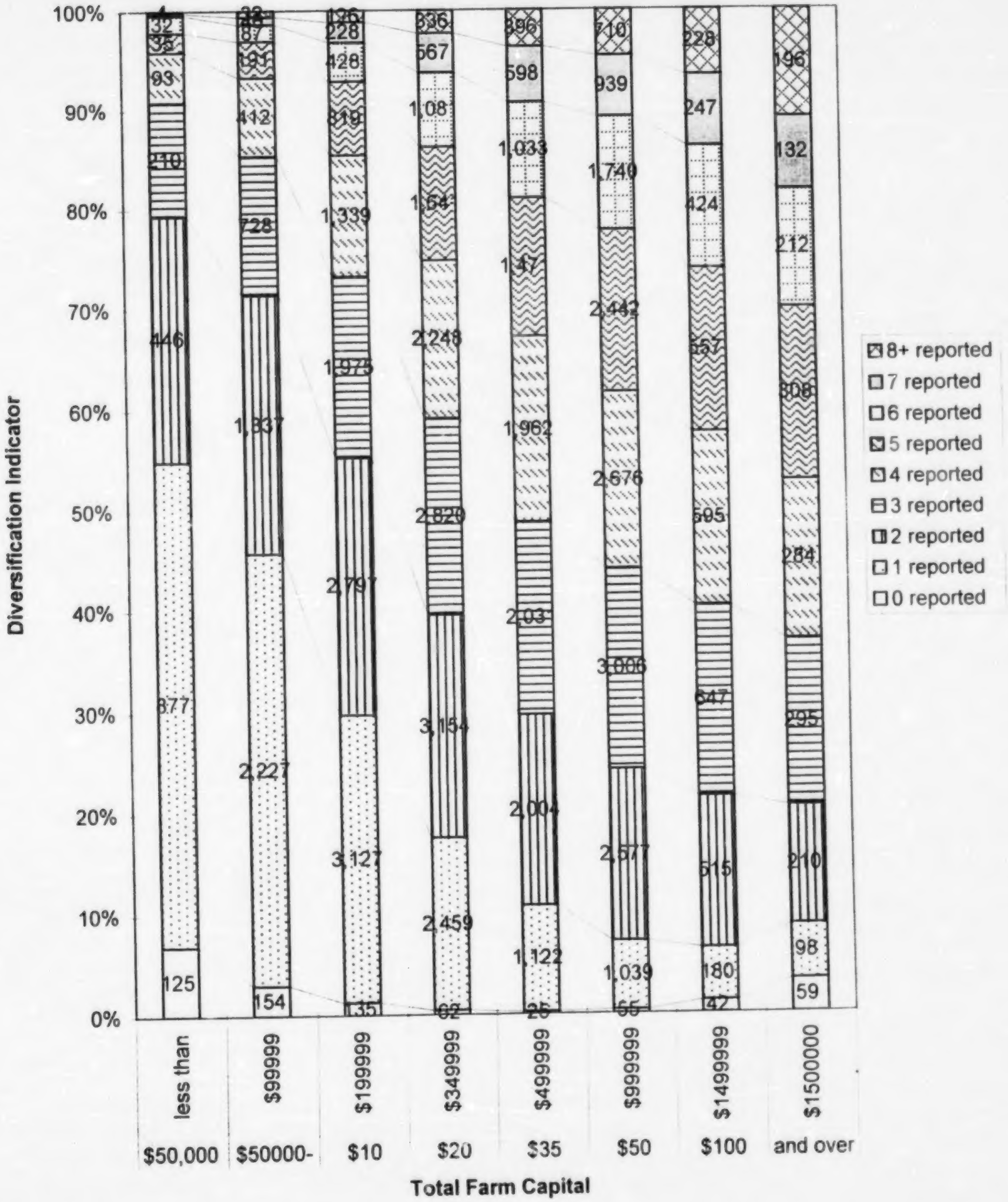


Figure 3-11c
Total Farm Capital and Diversification
Saskatchewan, 1981

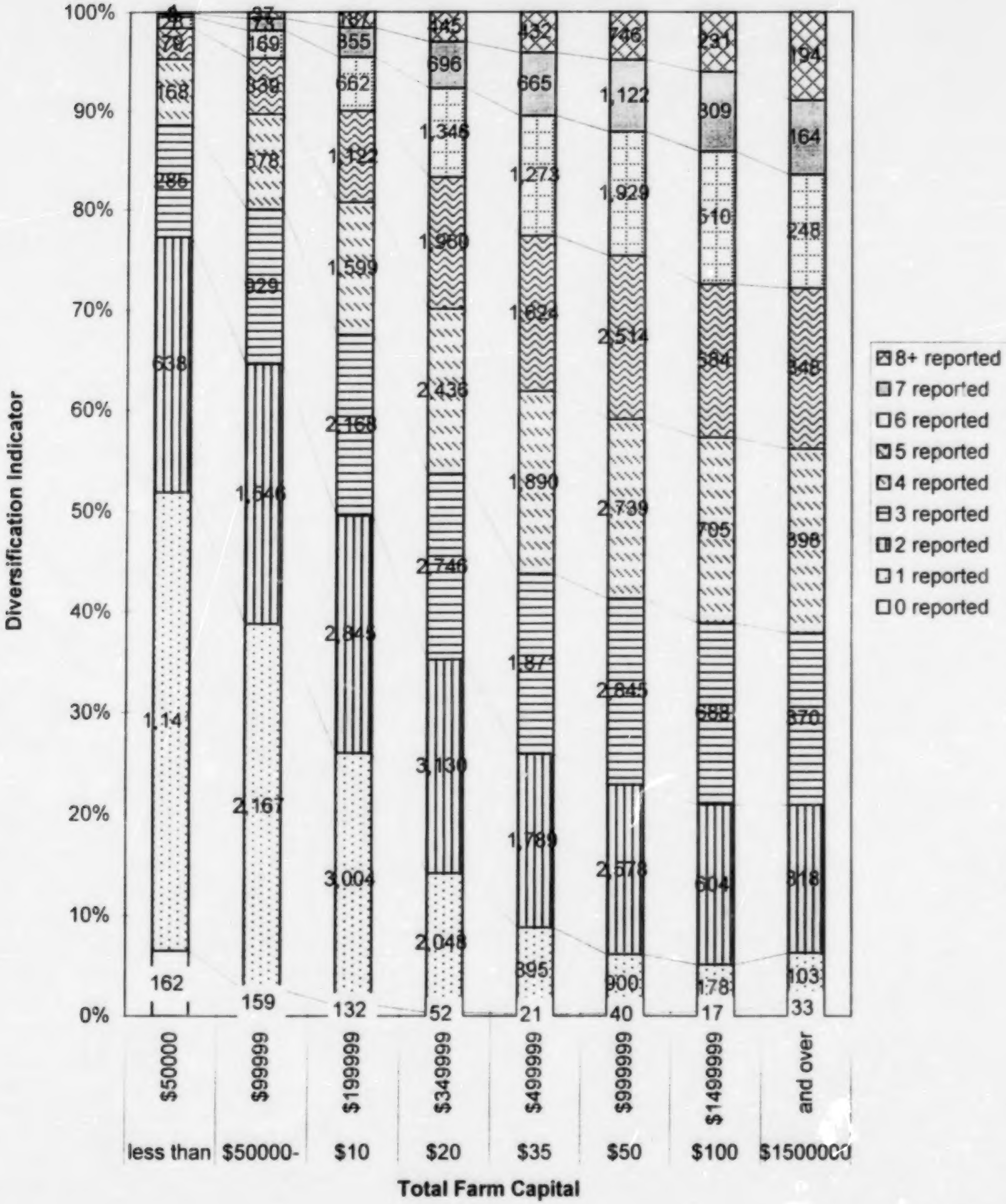


Figure 3-12a
Debt in Relationship to Capital and Diversification
Saskatchewan, 1991

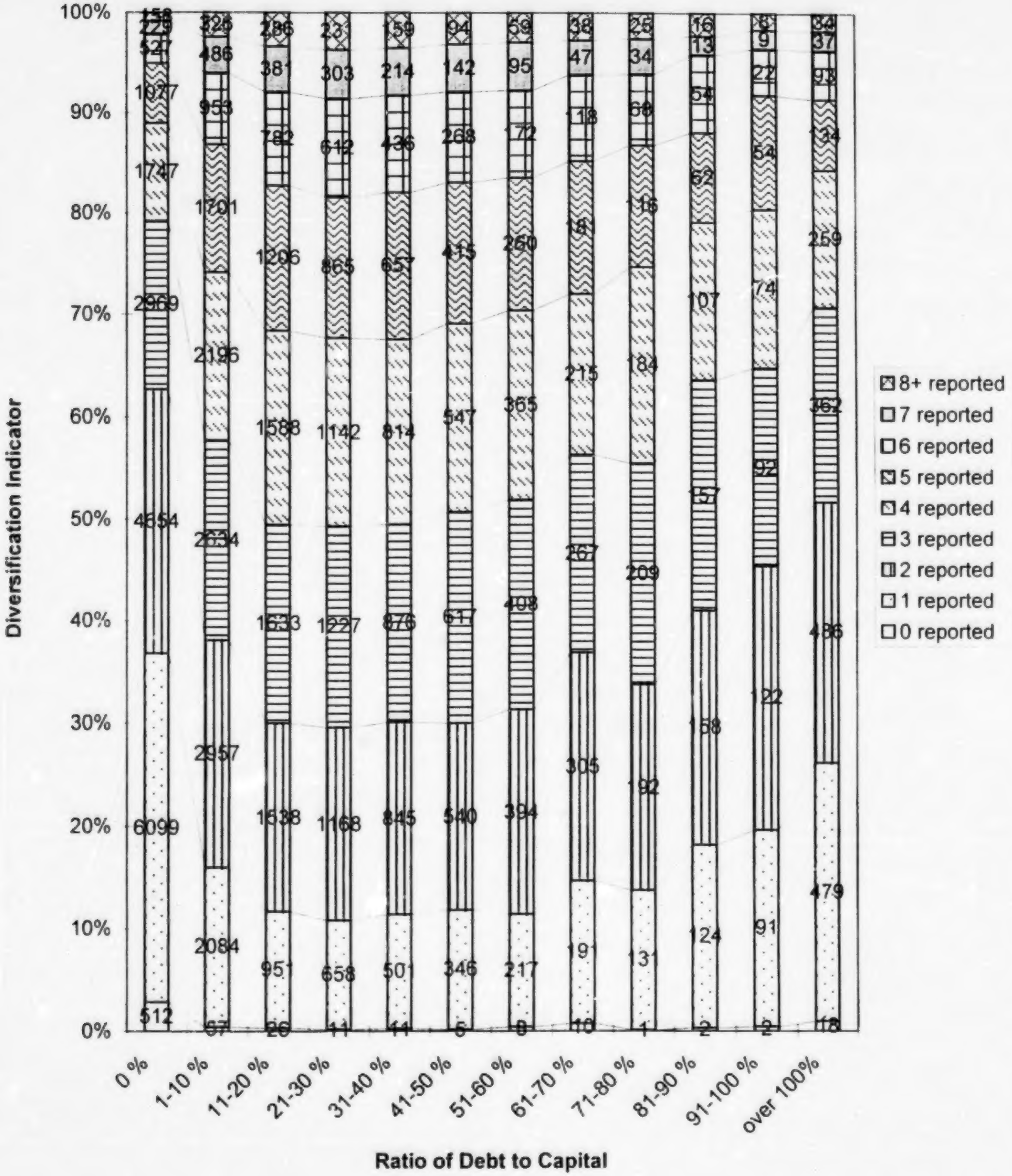


Figure 3-12b
Debt in Relationship to Capital and Diversification Saskatchewan, 1986

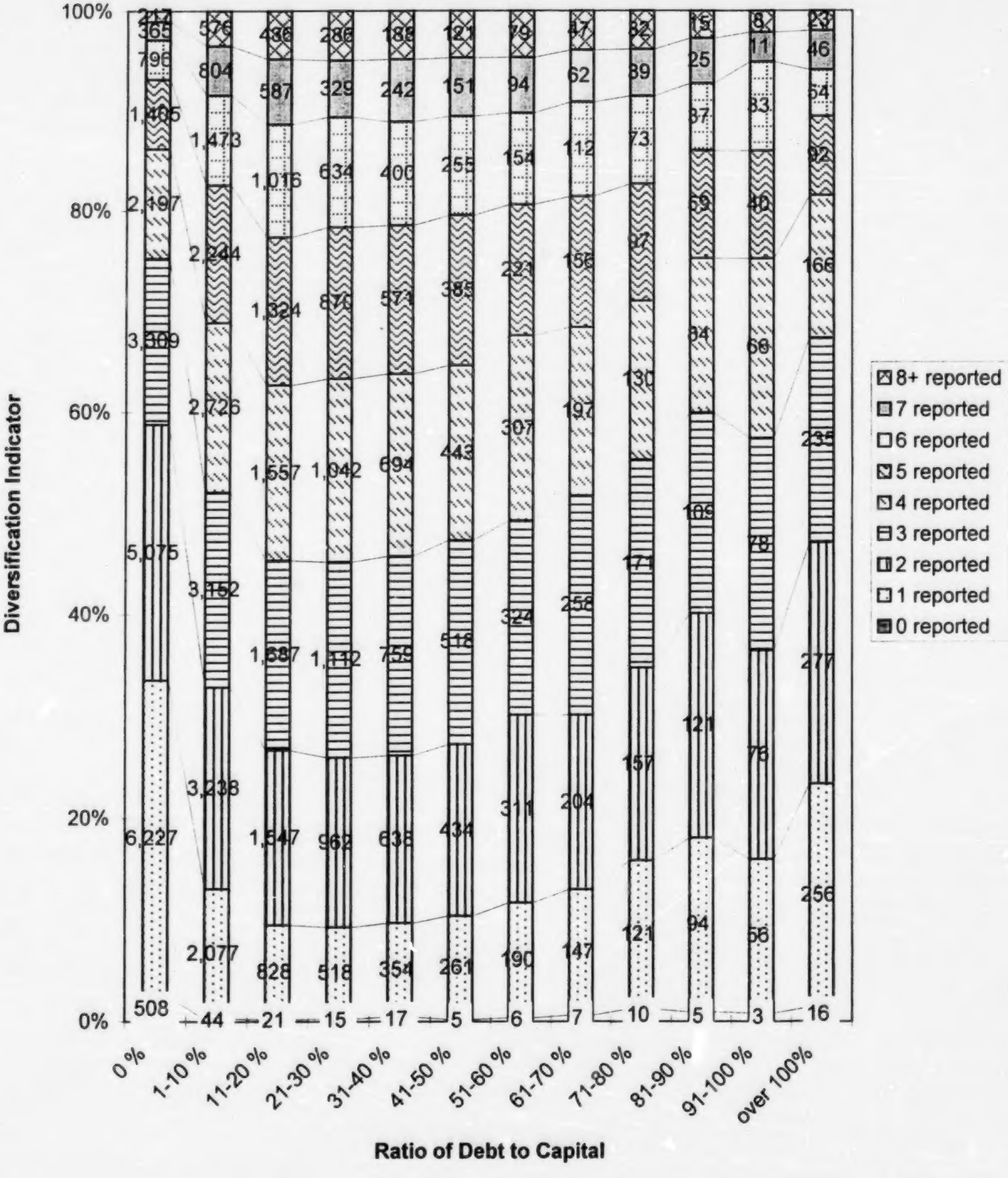


Figure 3-13a
Type of Farm Organization and Diversification
Saskatchewan, 1991

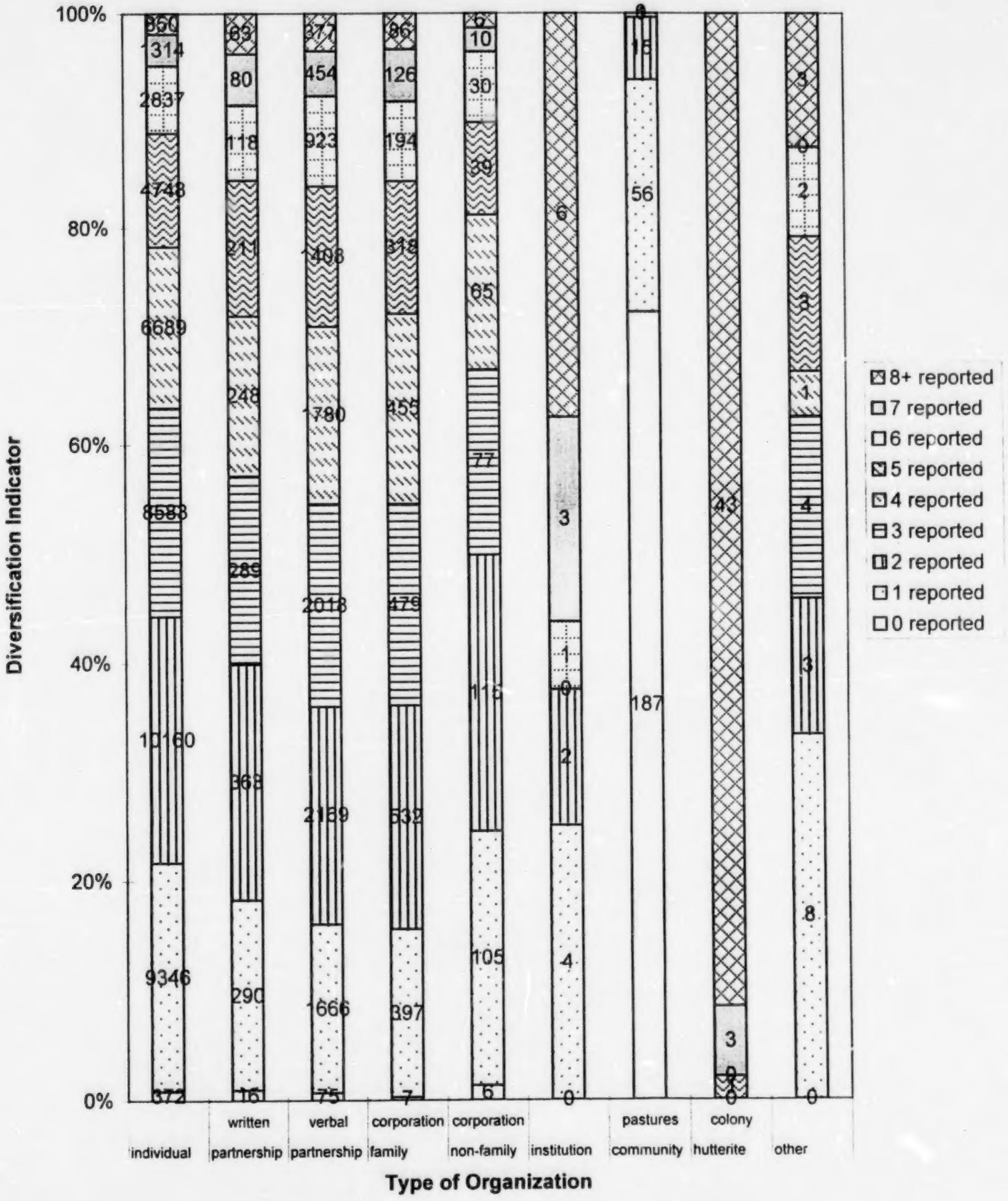


Figure 3-13b
Type of Farm Organization
Saskatchewan, 1986

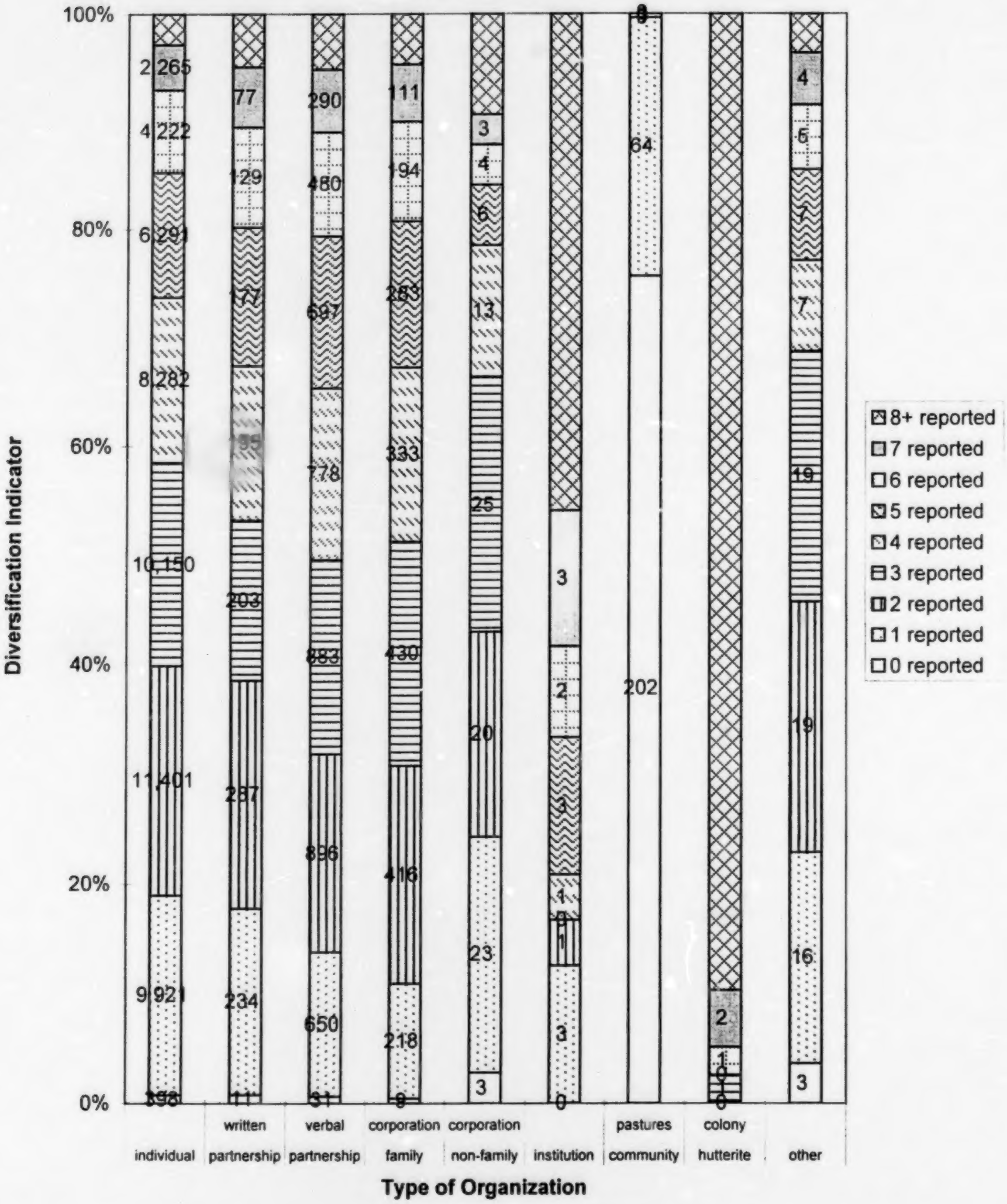


Figure 3-13c
Type of Farm Organization
Saskatchewan, 1981

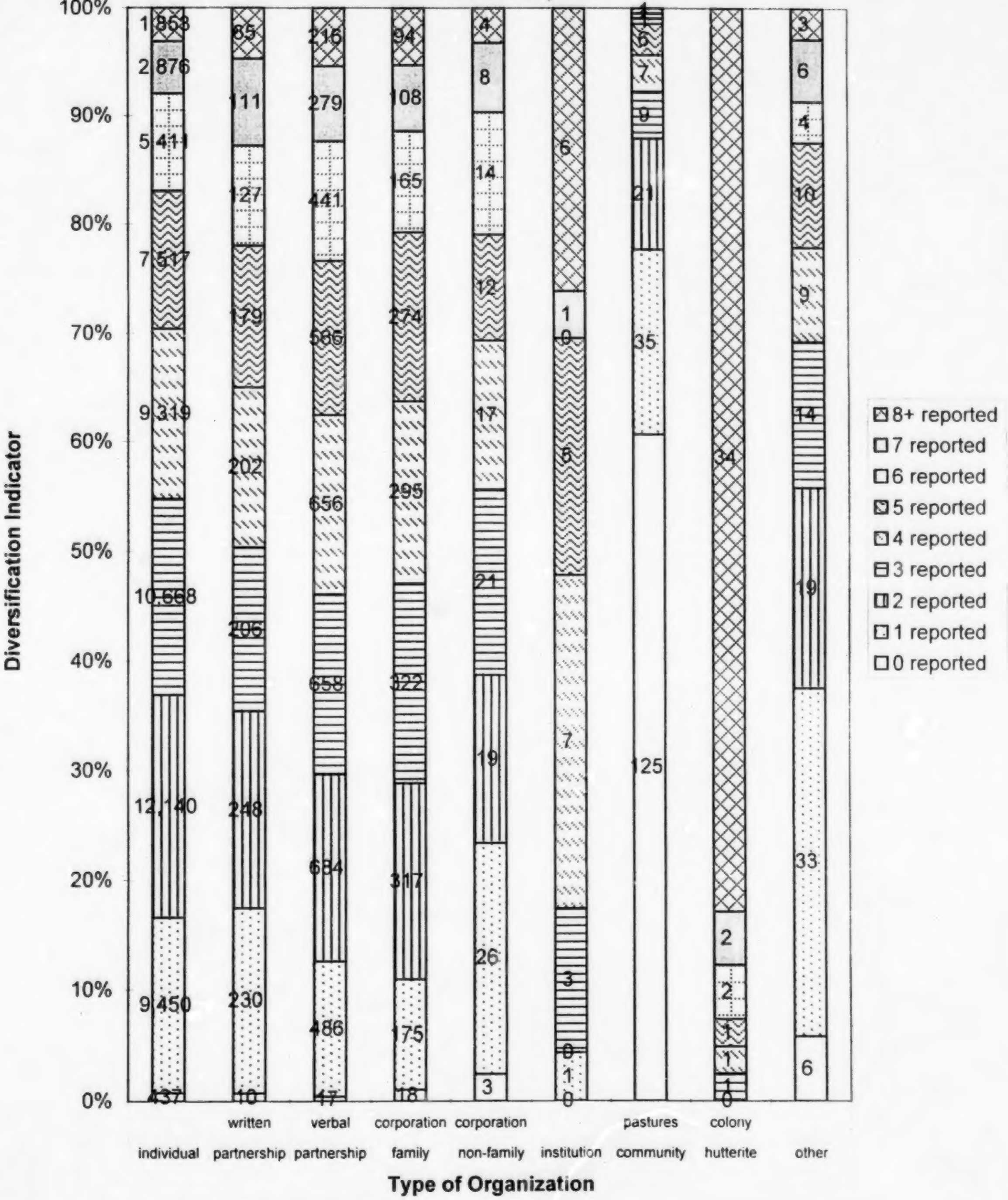


Figure 3-14a
Type of Farm and Diversification
Saskatchewan, 1991

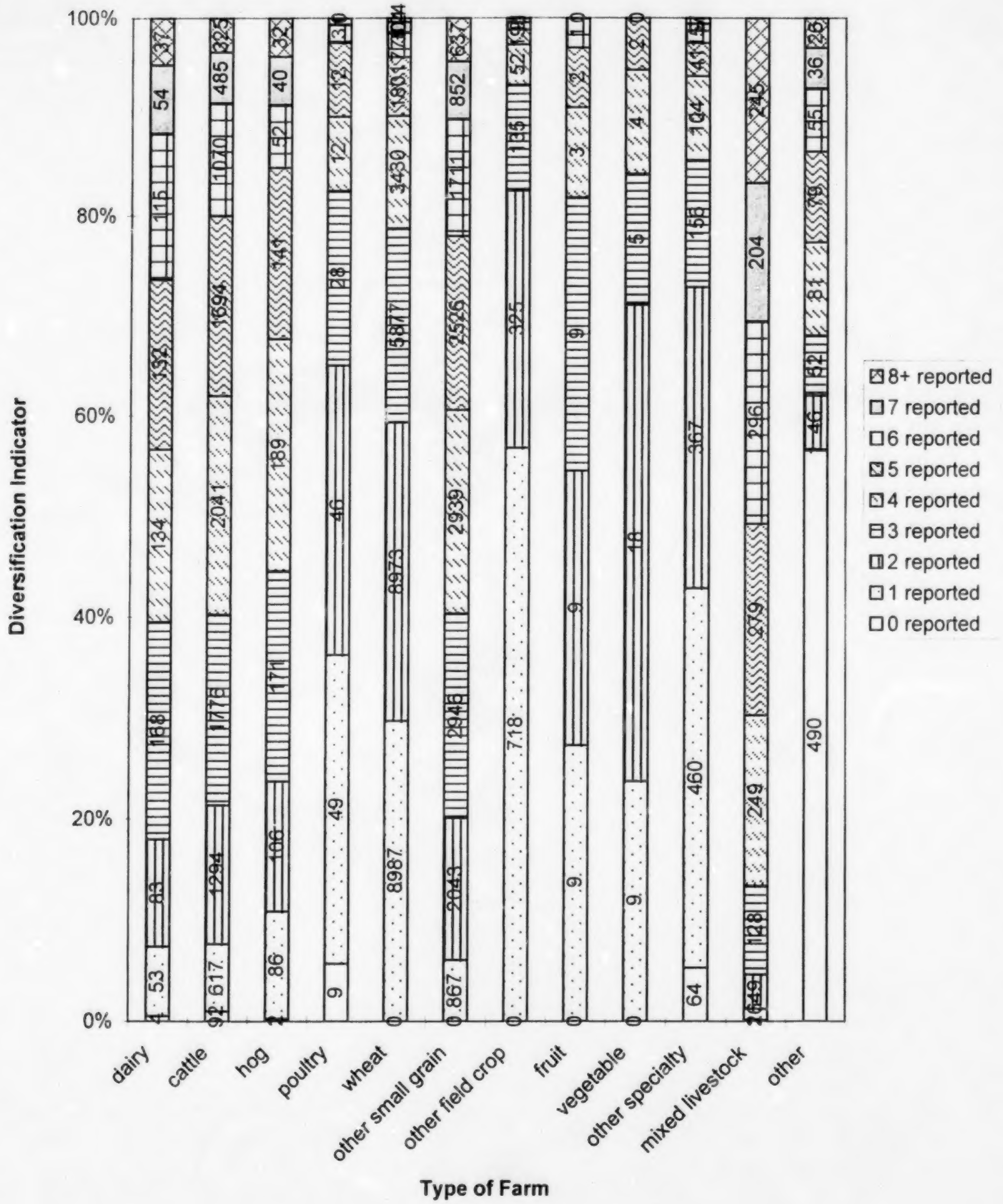


Figure 3-14b
Type of Farm and Diversification
Saskatchewan, 1986

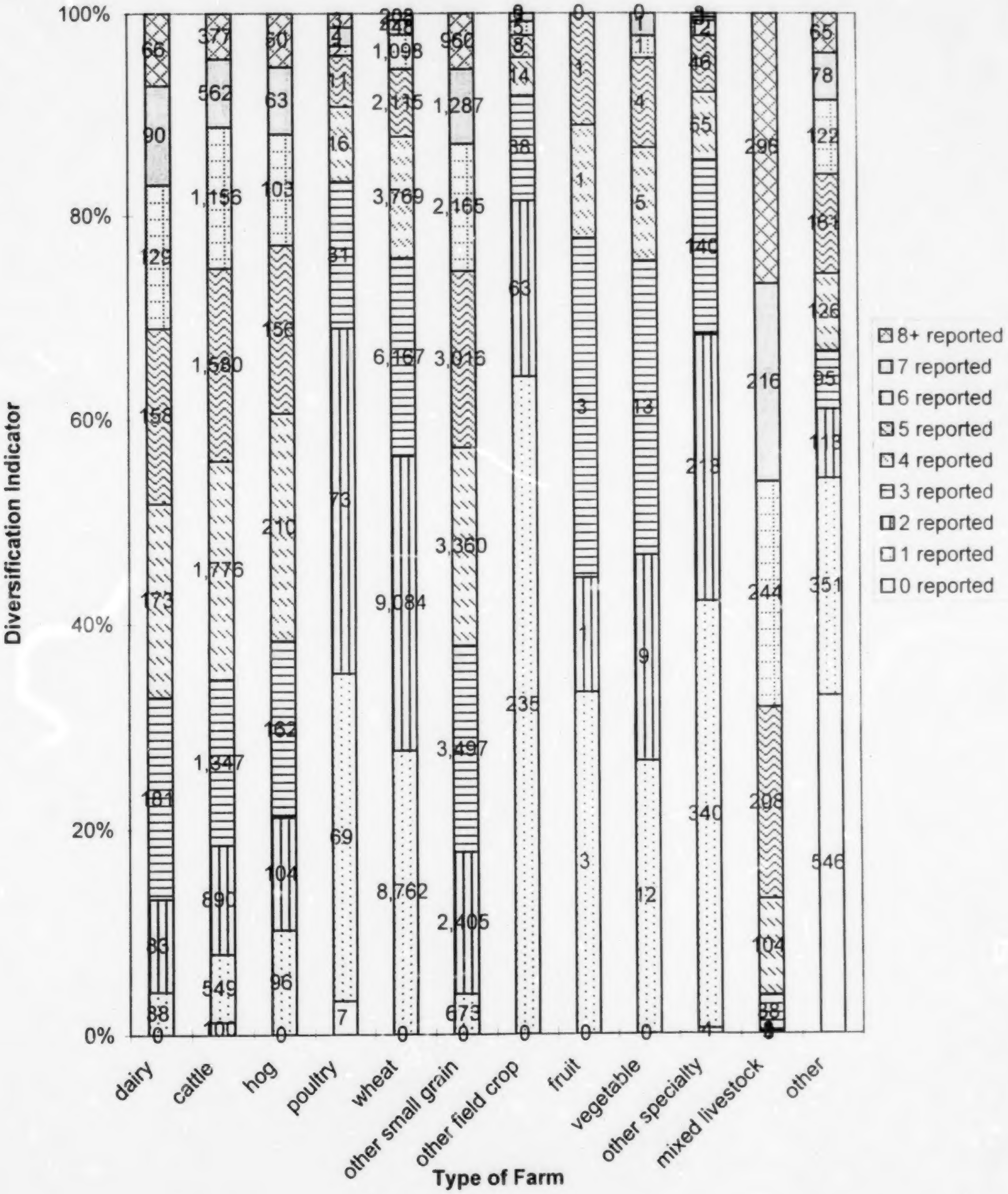


Figure 3-14c
Type of Farm and Divesification
Saskatchewan, 1981

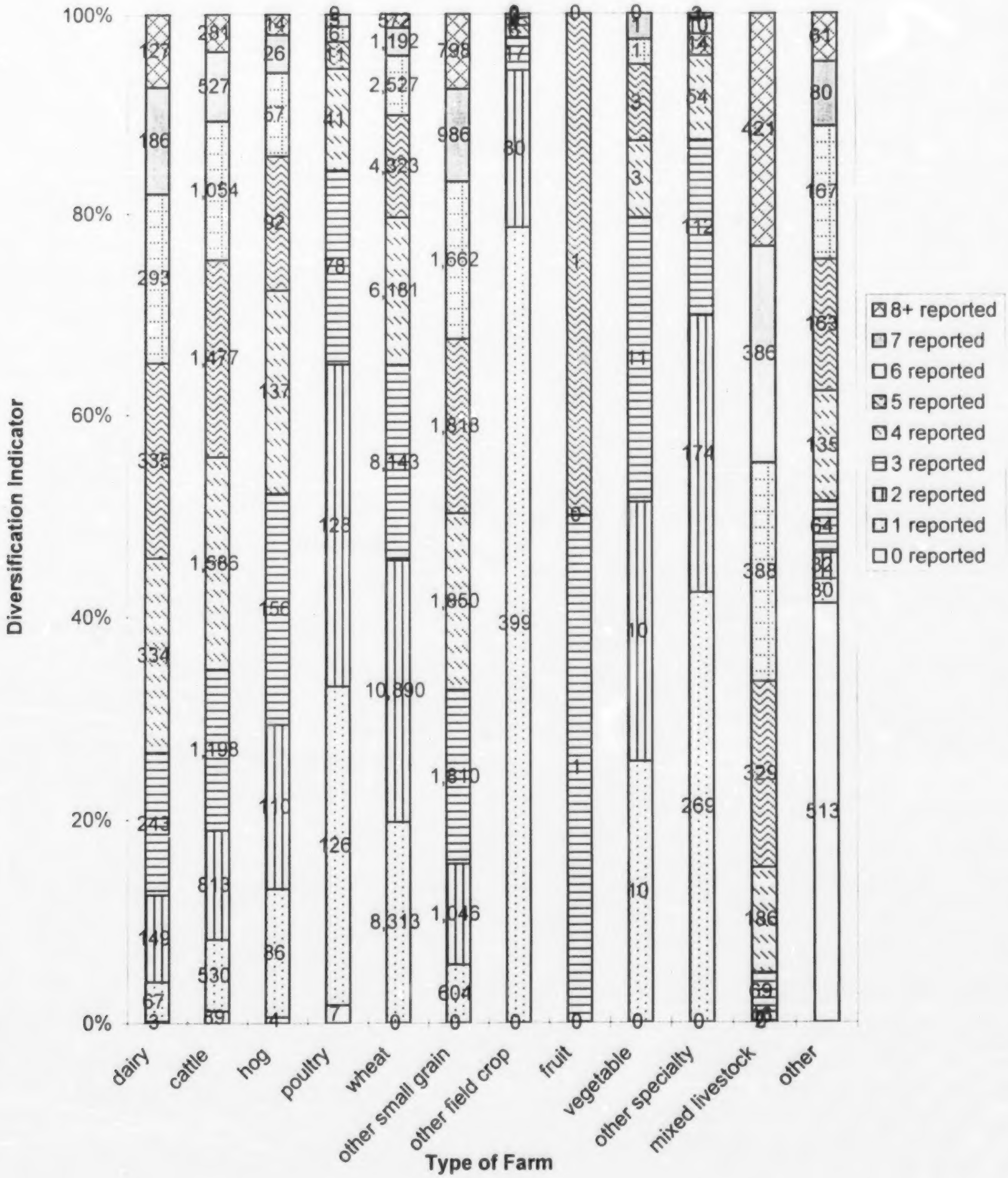


Figure 3-15a
Off-farm Work and Diversification
Saskatchewan, 1991

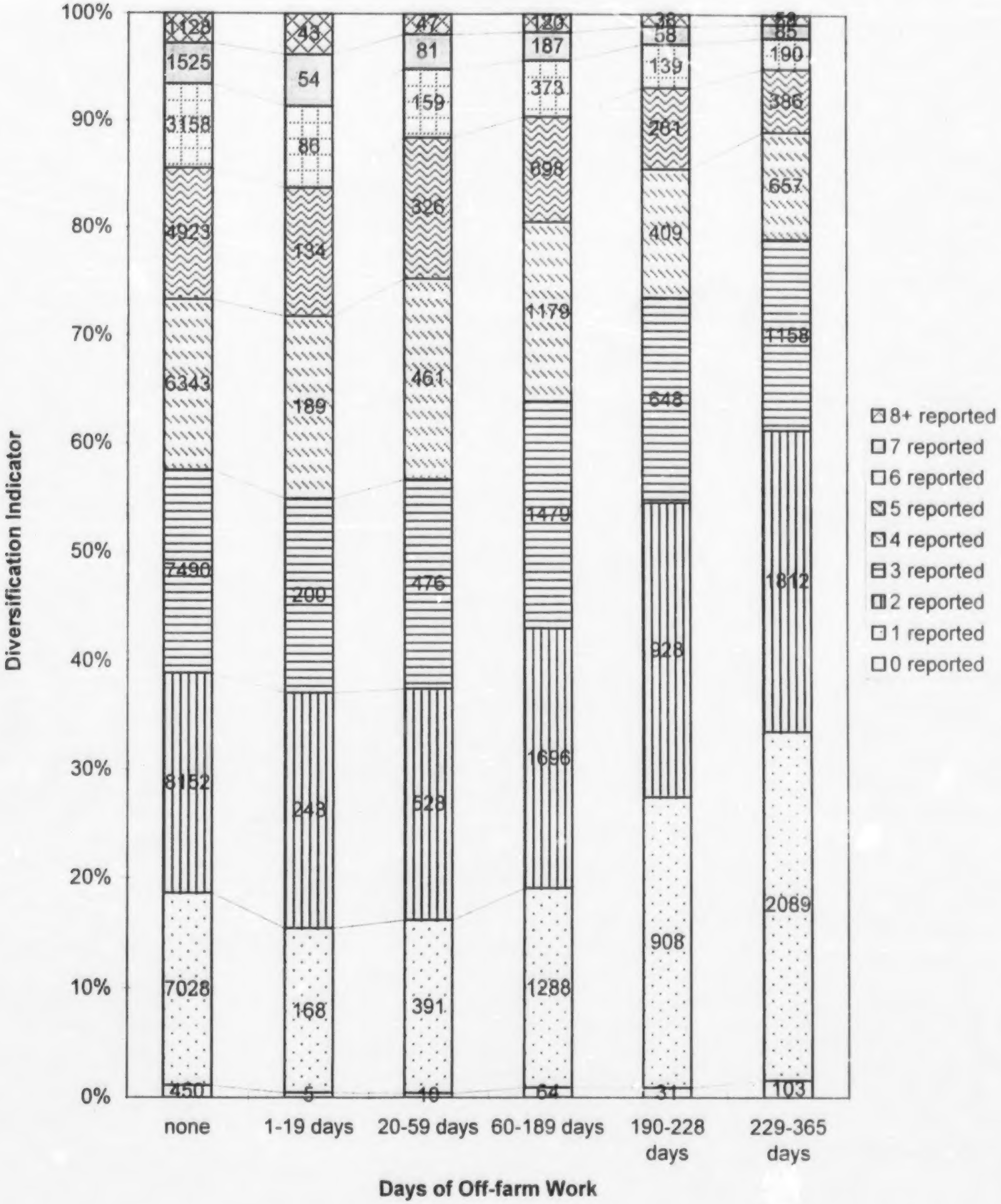


Figure 3-15b
Off-Farm Work and Diversification
Saskatchewan, 1986

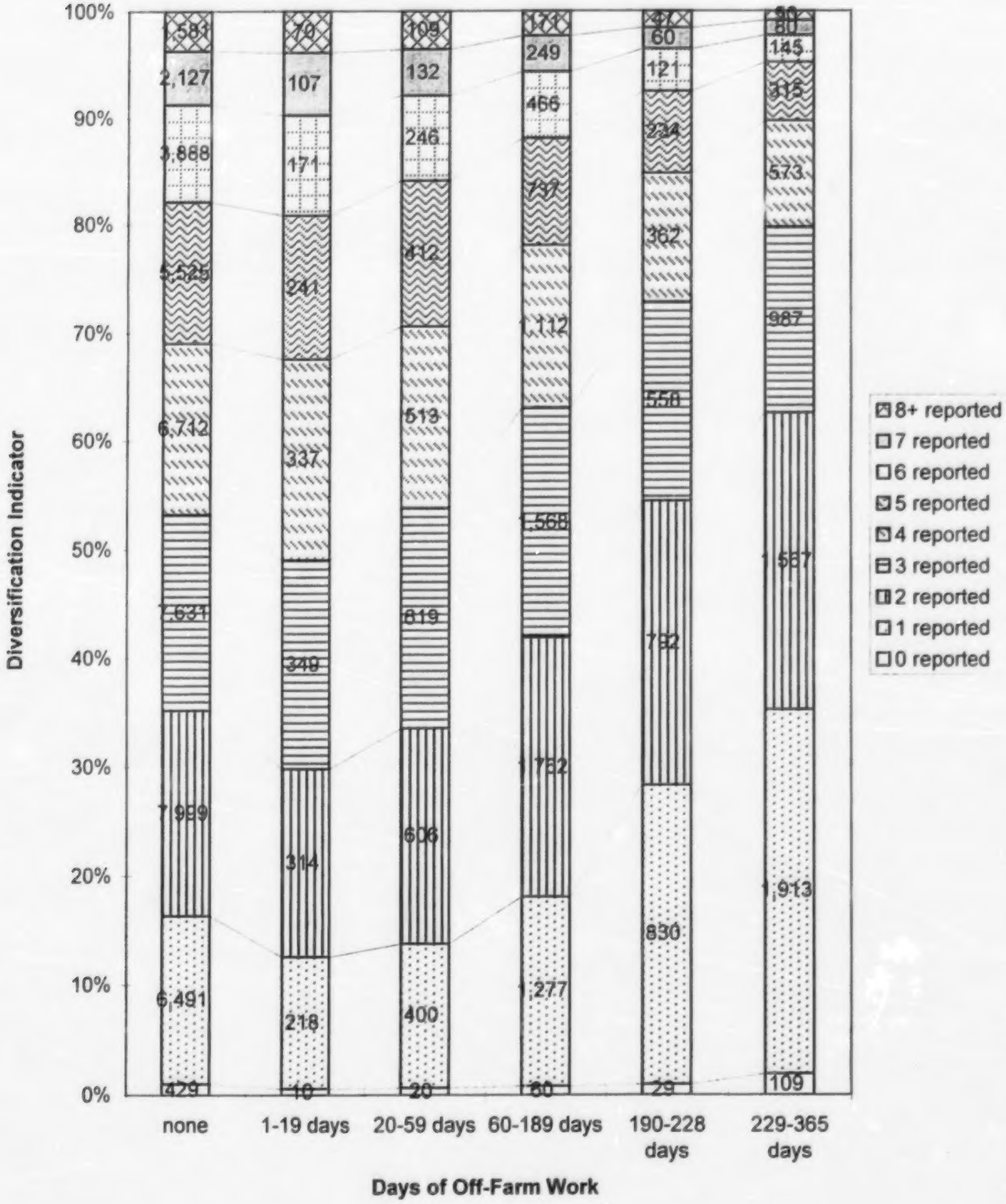


Figure 3-15c
Off-Farm Work and Diversification
Saskatchewan, 1981

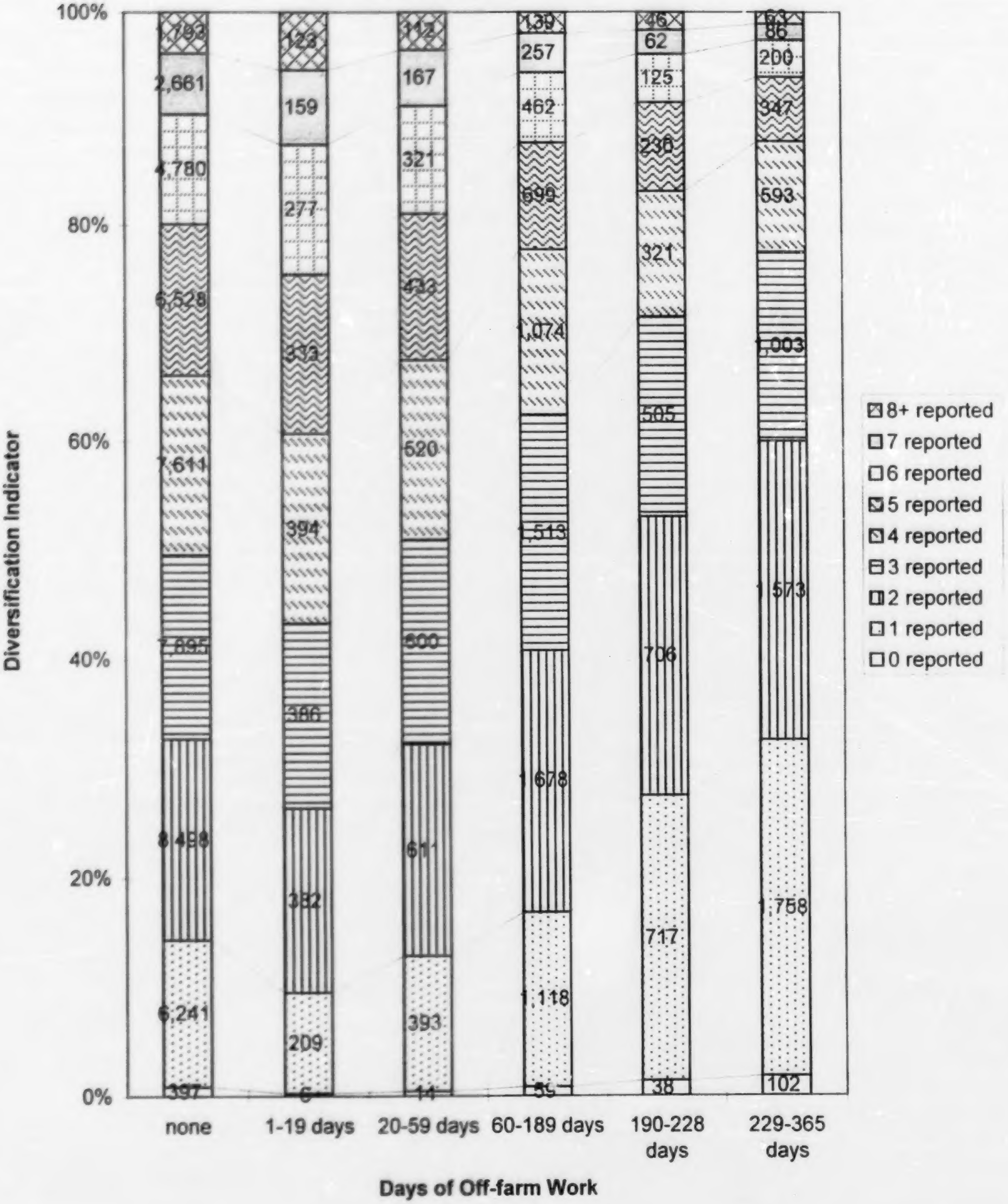


Figure 3-16a
Hired Labour and Diversification
Saskatchewan, 1991

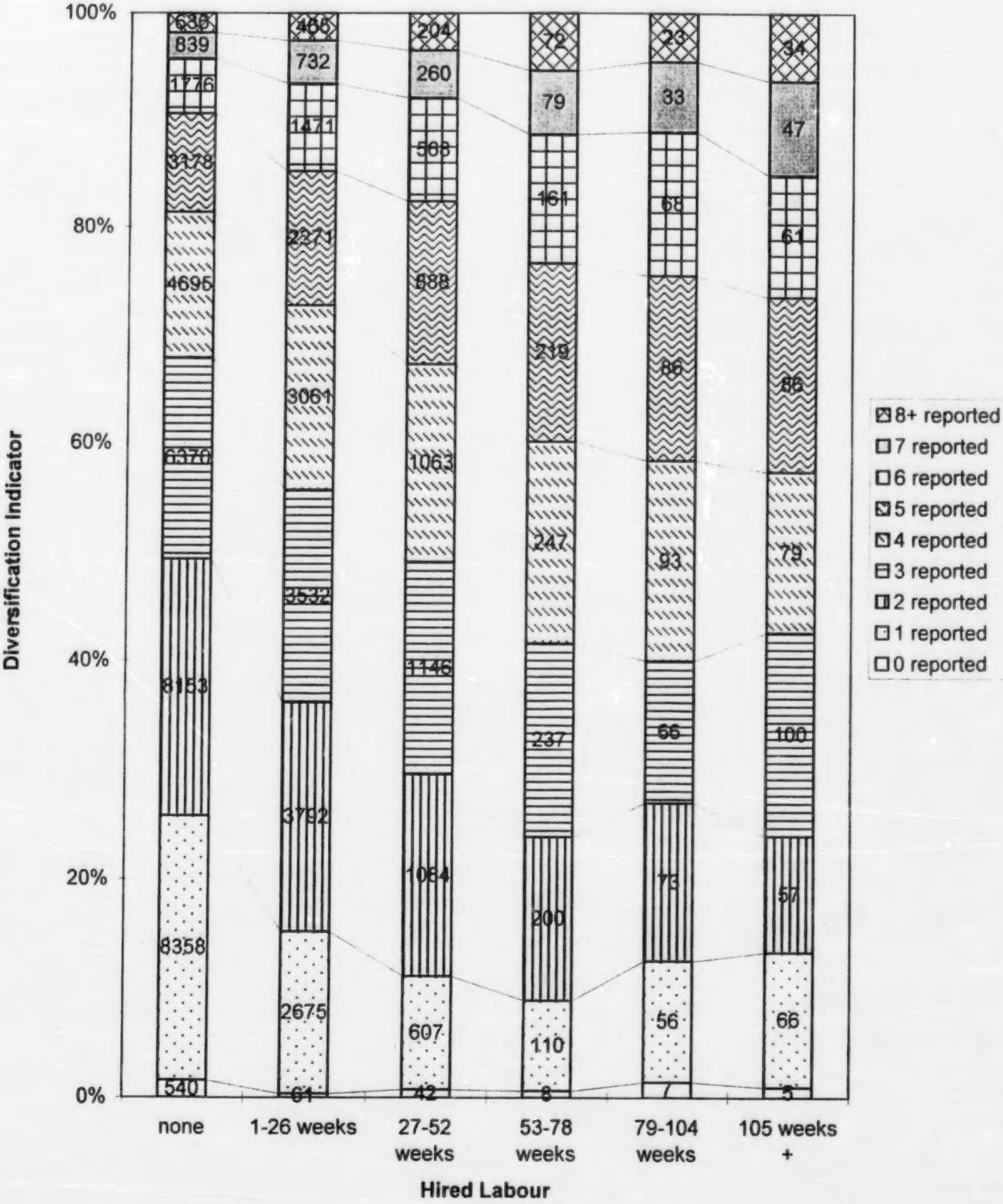
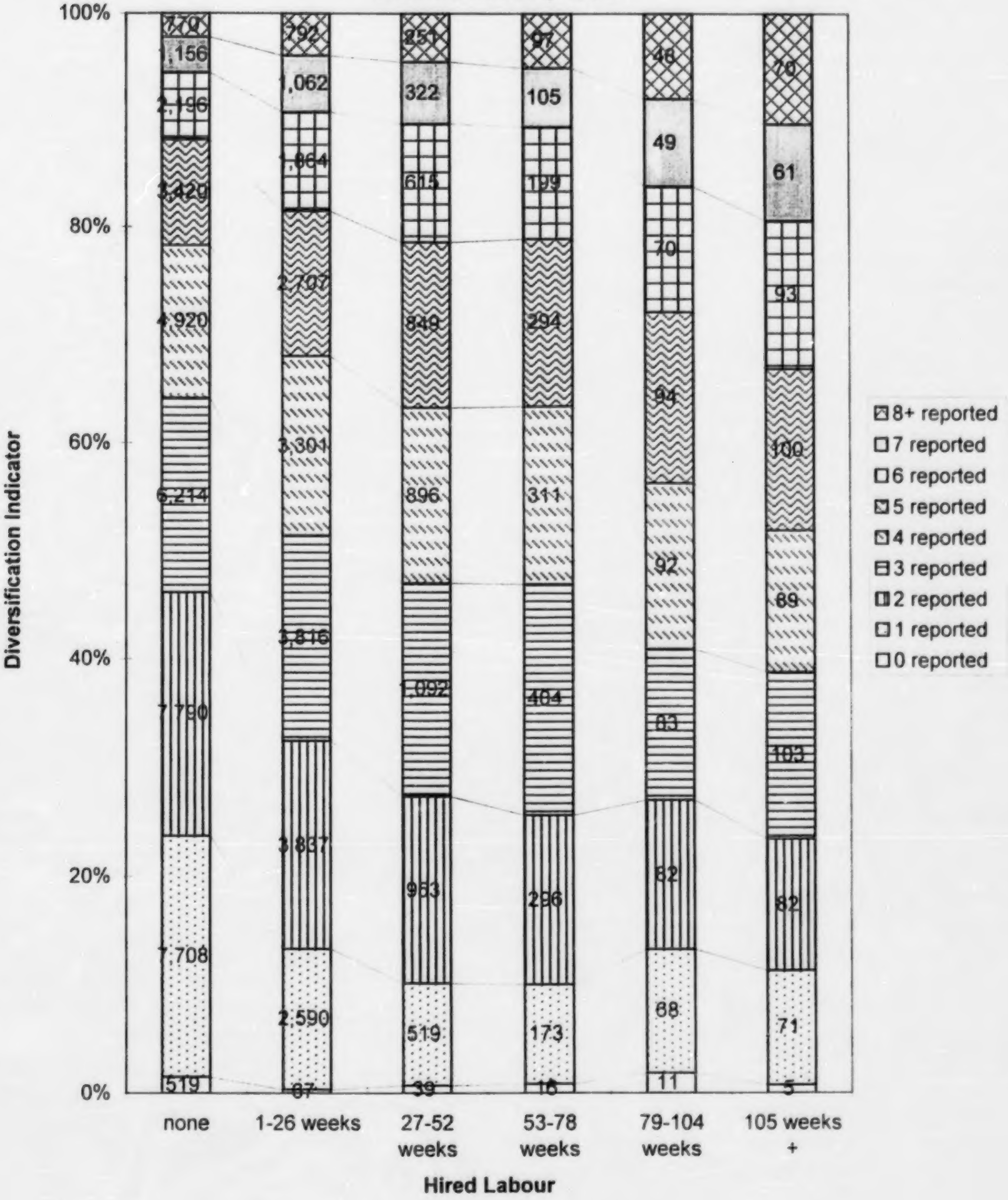


Figure 3-16b
Hired Labour and Diversification
Saskatchewan, 1986



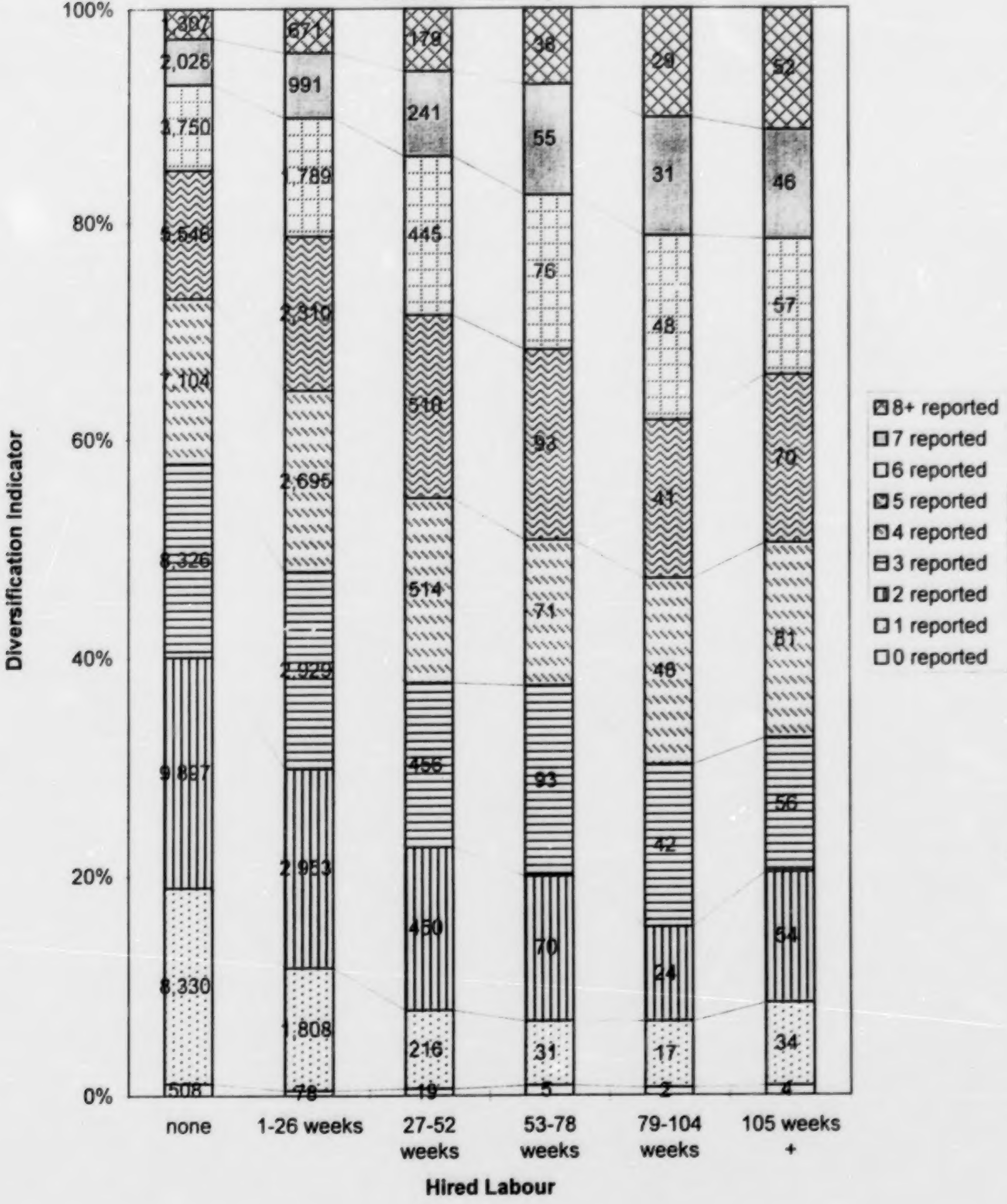


Figure 3-16c
Hired Labour and Diversification
Saskatchewan, 1981

Figure 3-17a
Non-family Wages and Diversification
Saskatchewan, 1991

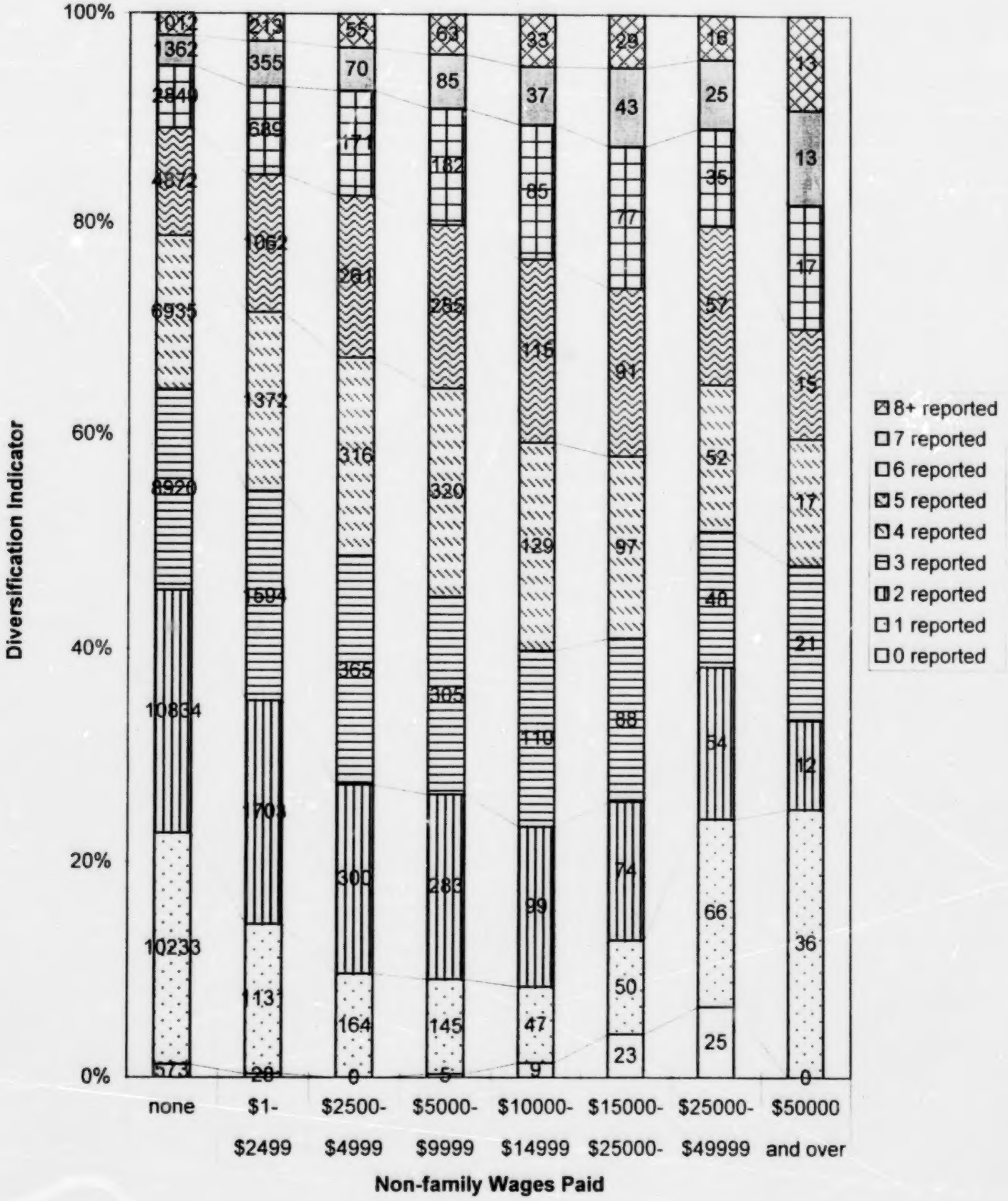


Figure 3-17b
Non-family Wages and Diversification Saskatchewan, 1986

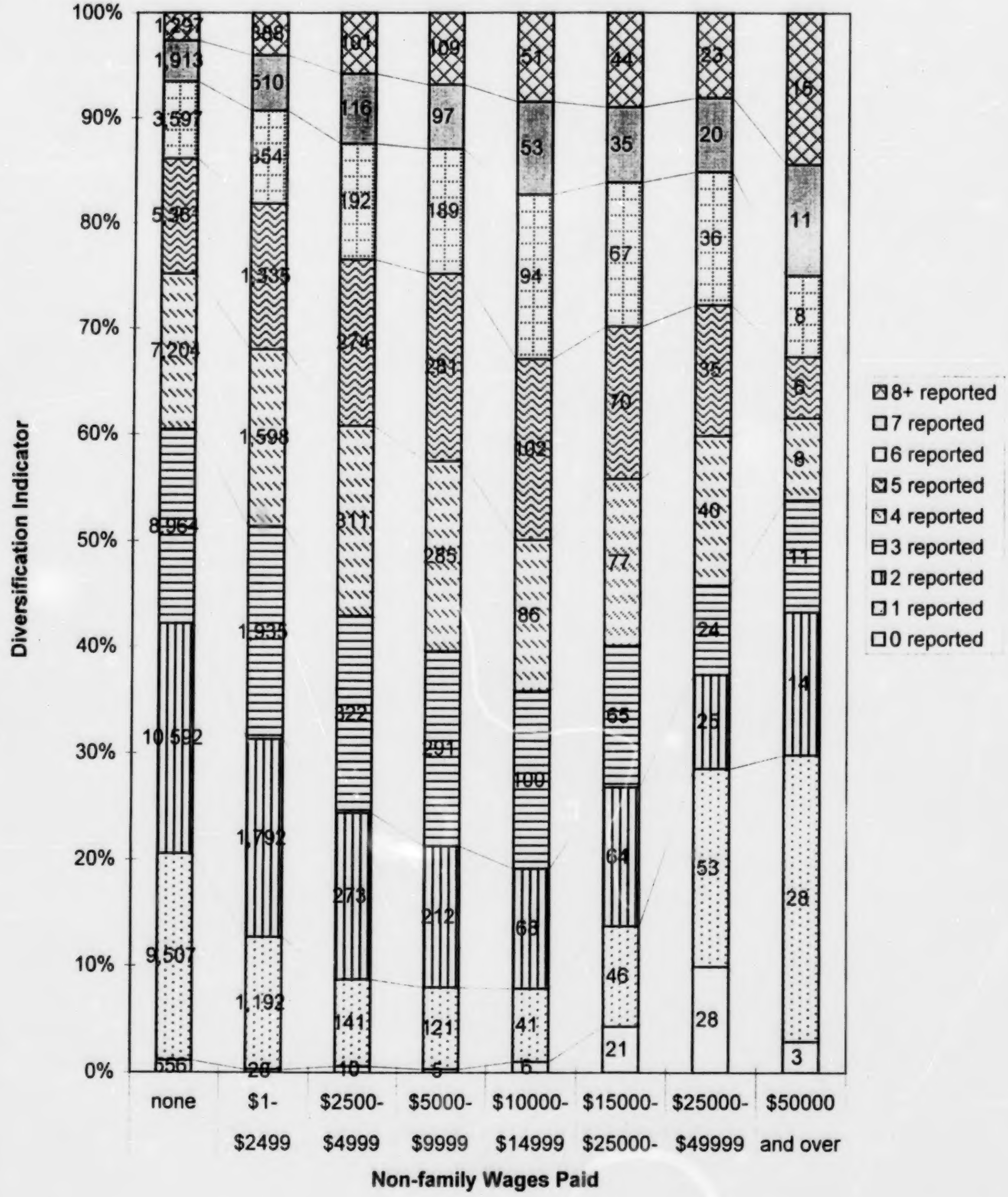


Figure 3-18a
Total Cash Wages and Diversification
Saskatchewan, 1991

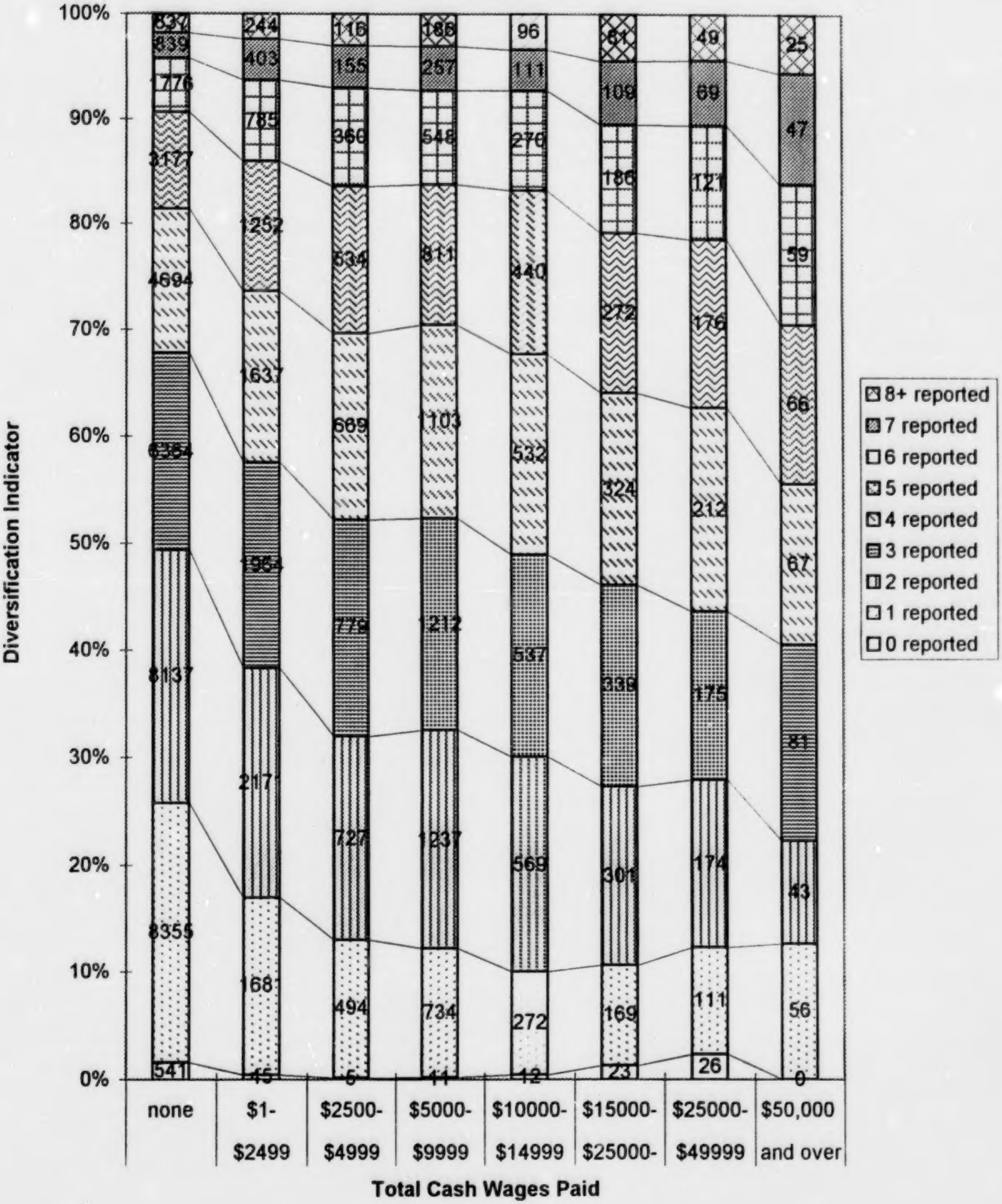


Figure 3-18b
Total Cash Wages and Diversification
Saskatchewan, 1986

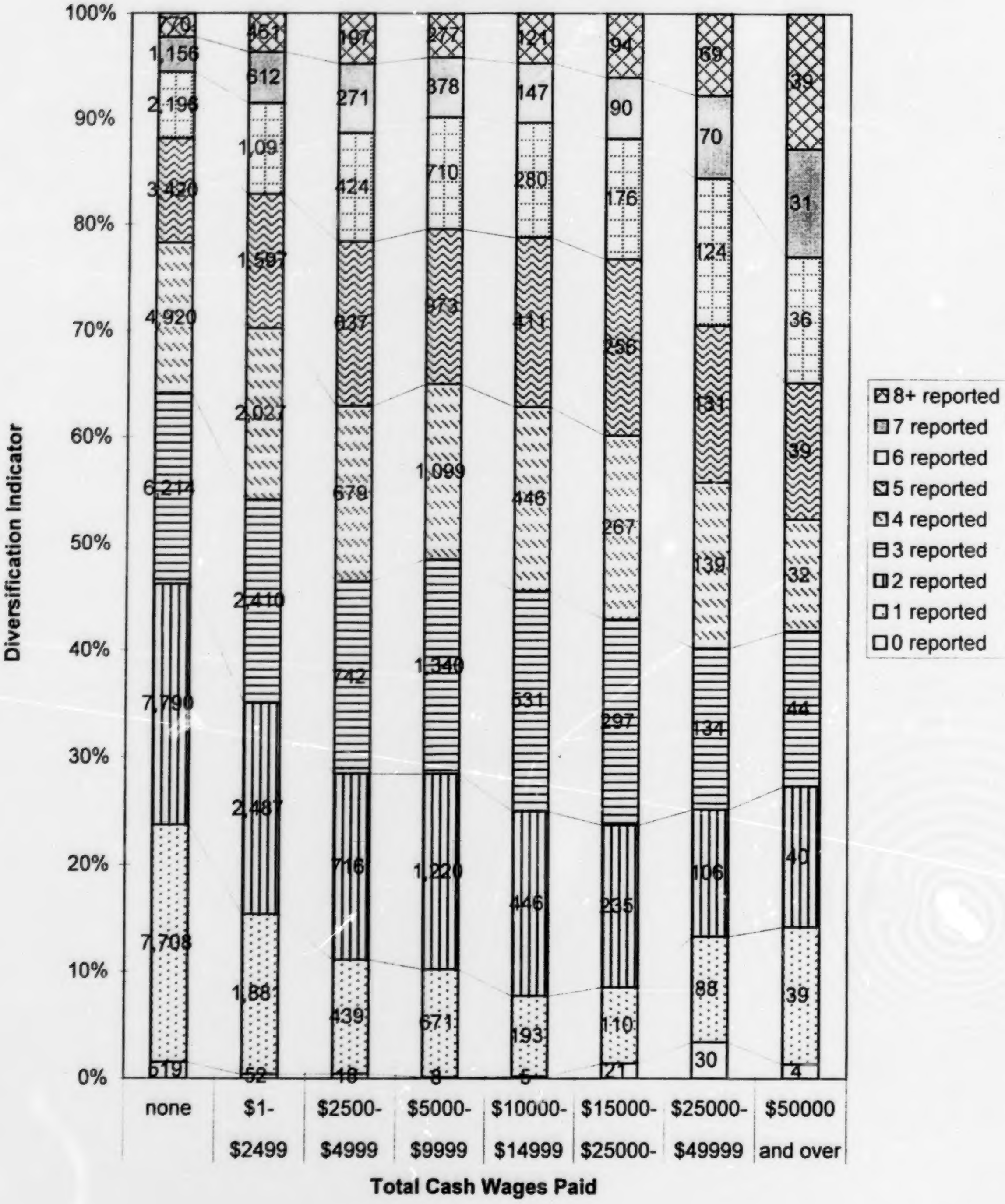


Figure 3-18c
Total Cash Wages and Diversification
Saskatchewan, 1981

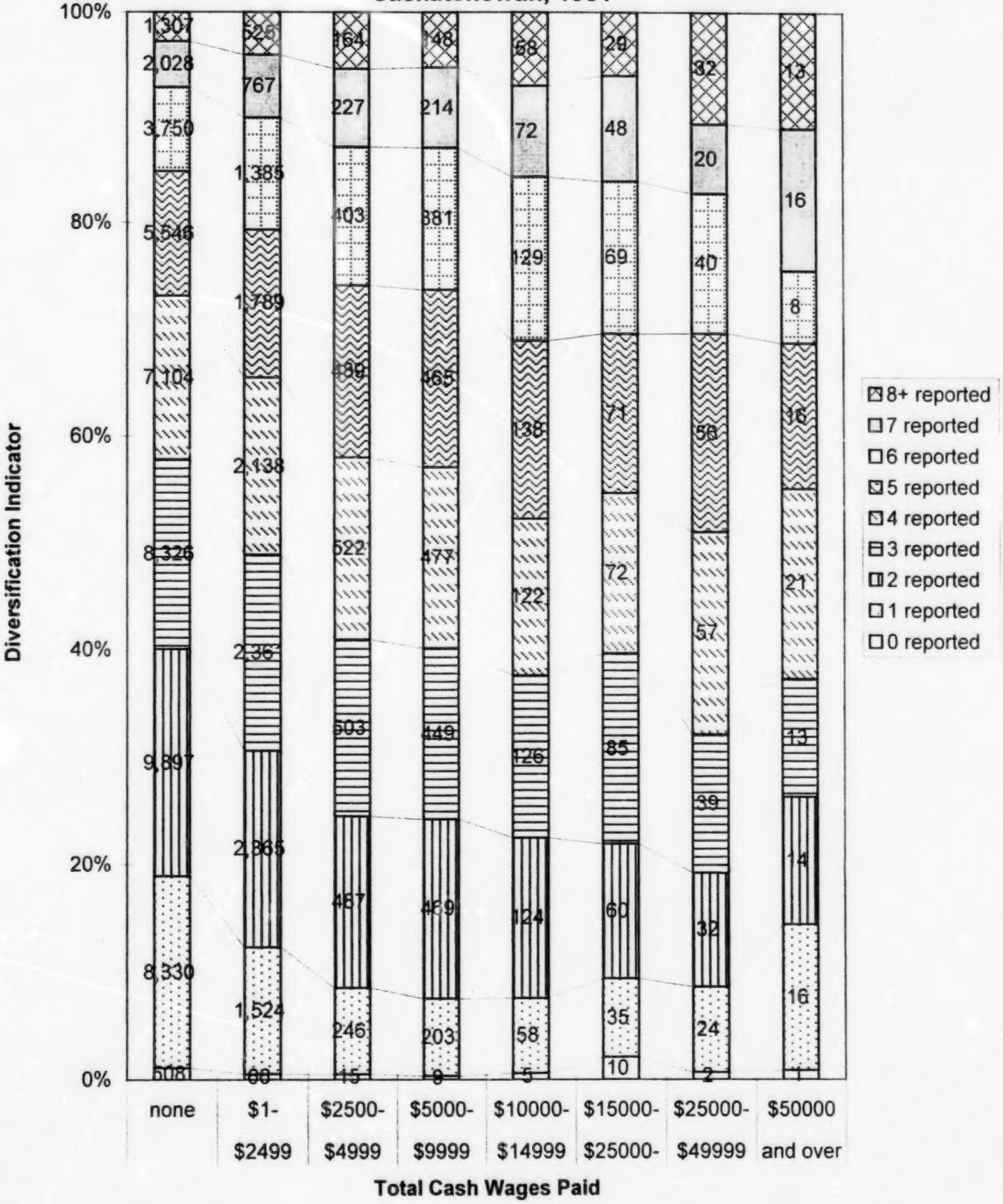


Figure 3-19a
Family Wages and Diversification
Saskatchewan, 1991

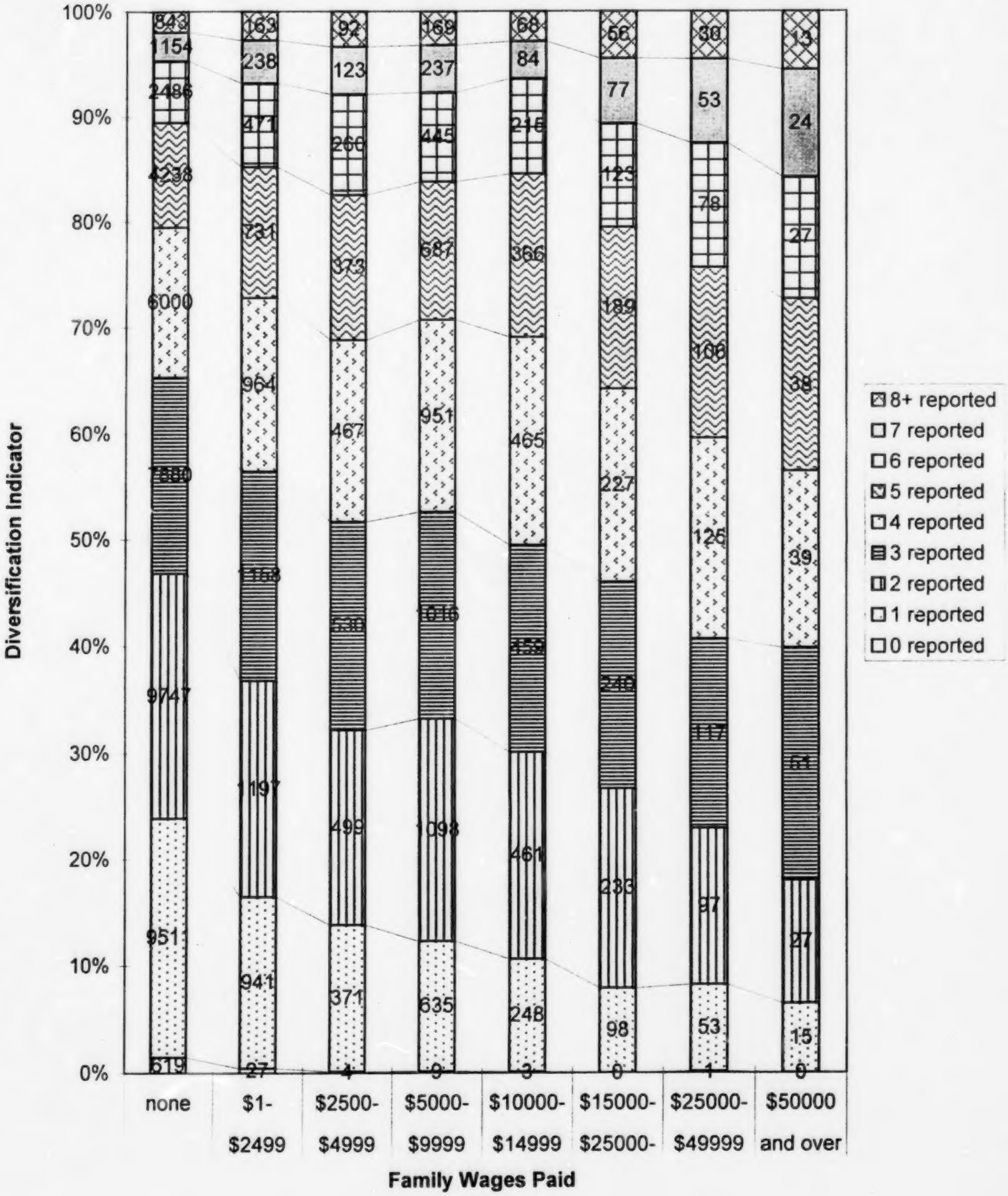


Figure 3-19b
Family Wages and Diversification
Saskatchewan, 1986